2nd FLOOR

MECHANIX ILLUSTRATED©

15c

SEPTEMBER

Flying Automobile--See Page 74

IRST PORTABLE TELEVISION SET SEE PAGE 78

THE "MIRACLE" DRUGS CAN KILL YOU

Car polishing is easy

with this exclusive DuPont formula!

A small section of the surface of an average car magnified 20 times. The left side is shown still covered with Traffic Film. The right side has been cleaned with Du Pont NO. 7 POLISH.

DU PONT №7 POLISH

Contains "stroke saving" methyl cellulose

Here's a polish that turns a chore into a pleasure! It saves time, saves work! Du Pont NO. 7 POLISH is made by a patented formula . . . loosens dirt and grime quickly . . . cleans up *fast*, leaving a dry, brilliant shine. Next time your car needs a cleaning, use NO. 7 POLISH, the short-cut to car beauty!

DU PONT

BETTER THINGS FOR BETTER LIVING
. . . *THROUGH CHEMISTRY*

Especially
FOR NEW CARS!

Here's a wax-polish made especially for new cars—and others whose finish is in first class condition. It cleans and wax-polishes in one easy operation. Produces a brilliant, lasting lustre. Keeps cars looking new.

DU PONT SPEEDY WAX

T
SH
ulose
into a
Du Pont
ted for-
kly . . .
t shine.
ng, use
beauty!
ING

ON YOUR OWN

You know the feeling. You had it that time you "soloed" the family car. And again that day you shed the khaki blouse and shook the moth-balls out of the loudest get-up in your wardrobe.

It's the feeling that comes with being *on your own.*

And it's the same feeling shared by thousands of young I.C.S. students who are going into business for themselves. They are their own bosses. They are doing what they want most to do. What's more, a great many of them are making it pay — and pay well.

Chances are, you too have been thinking about "setting up shop" for yourself. Why put it off? You have the courage, the ambition, the intelligence. I.C.S. has the training you need. Together they can spell SUCCESS for you.

You'll want all the information you can get before making a decision. It's available without cost or obligation. Just clip and mail the coupon below. Do it NOW!

INTERNATIONAL CORRESPONDENCE SCHOOLS

ICS

BOX 2323-S, SCRANTON 9, PENNA.

Without cost or obligation, please send me full particulars about the course BEFORE which I have marked X:

Business and Academic Courses
- ☐ Accounting ☐ Advertising
- ☐ Bookkeeping
- ☐ Business Administration
- ☐ Business Correspondence
- ☐ Certified Public Accounting
- ☐ Commercial
- ☐ Commercial Art
- ☐ Cost Accounting
- ☐ Federal Tax
- ☐ First Year College
- ☐ Foremanship ☐ French
- ☐ Good English ☐ High School
- ☐ Higher Mathematics
- ☐ Motor Traffic ☐ Postal Civil Service
- ☐ Retailing ☐ Retail Store Management
- ☐ Salesmanship ☐ Secretarial
- ☐ Sign Lettering
- ☐ Spanish ☐ Stenography
- ☐ Traffic Management

Air Conditioning and Plumbing Courses
- ☐ Air Conditioning
- ☐ Heating ☐ Plumbing
- ☐ Refrigeration ☐ Steam Fitting

Chemistry Courses
- ☐ Chemical Engineering
- ☐ Chemistry, Analytical
- ☐ Chemistry, Industrial
- ☐ Chemistry, Mfg. Iron & Steel
- ☐ Petroleum Refining ☐ Plastics
- ☐ Pulp and Paper Making

Civil Engineering, Architectural and Mining Courses
- ☐ Architecture
- ☐ Architectural Drafting
- ☐ Building Estimating
- ☐ Civil Engineering ☐ Coal Mining
- ☐ Contracting and Building
- ☐ Highway Engineering
- ☐ Lumber Dealer
- ☐ Reading Structural Blueprints
- ☐ Sanitary Engineering
- ☐ Structural Drafting
- ☐ Structural Engineering
- ☐ Surveying and Mapping

Communications Courses
- ☐ Electronics
- ☐ Practical Telephony
- ☐ Radio, General ☐ Radio Operating
- ☐ Radio Servicing
- ☐ Telegraph Engineering

Electrical Courses
- ☐ Electrical Drafting
- ☐ Electrical Engineering
- ☐ Electric Light and Power
- ☐ Lighting Technician
- ☐ Practical Electrician
- ☐ Power House-Electric
- ☐ Ship Electrician

Internal Combustion Engines Courses
- ☐ Auto Technician ☐ Aviation
- ☐ Diesel-Electric
- ☐ Diesel Engines ☐ Gas Engines

Mechanical Courses
- ☐ Aeronautical Engineer's, Jr.
- ☐ Aircraft Drafting ☐ Flight Engineer
- ☐ Forging ☐ Foundry Work
- ☐ Heat Treatment of Metals
- ☐ Industrial Engineering
- ☐ Industrial Metallurgy
- ☐ Machine Shop
- ☐ Machine Shop Inspection
- ☐ Mechanical Drafting
- ☐ Mechanical Engineering
- ☐ Mold-Loft Work
- ☐ Patternmaking—Wood, Metal
- ☐ Reading Shop Blueprints
- ☐ Sheet-Metal Drafting
- ☐ Sheet-Metal Worker
- ☐ Ship Drafting ☐ Ship Fitting
- ☐ Tool Designing ☐ Toolmaking
- ☐ Welding—Gas and Electric
- ☐ Welding Engineering

Railroad Courses
- ☐ Air Brake ☐ Car Inspector
- ☐ Diesel Locomotive
- ☐ Locomotive Engineer
- ☐ Locomotive Firemen
- ☐ Locomotive Machinist
- ☐ Railroad Section Foreman

Steam Engineering Courses
- ☐ Boilermaking
- ☐ Combustion Engineering
- ☐ Engine Running
- ☐ Marine Engineering
- ☐ Steam Electric ☐ Steam Engineer

Textile Courses
- ☐ Cotton Manufacturing ☐ Loom Fixing
- ☐ Rayon Weaving ☐ Textile Designing
- ☐ Woolen Manufacturing

Name_____ Age_____ Home Address_____

City_____ State_____ Working Hours_____ A.M. to_____ P.M.

Present Position_____ Employed by_____

Special tuition rates to members of the Armed Forces. Enrollment under G.I. Bill and P.L. 16 approved for World War II Veterans.
Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada.

volume 39 number 11

mechanix illustrated

Title Registered U.S. Patent Office

september 1948

Cover photo by Ross-Pix

A Fawcett Publication

Copyright 1948 by Fawcett Publications, Inc.

special features

The "Miracle" Drugs Can Kill You 57
By Donald G. Cooley

Wacky Gags Are Back! 60

Wanted For Murder: The Rat 62
By Edward Frank Allen

Eye Surgery's Newest Marvel 66

Signboard In The Sky 68

Tomorrow's Model Farm—Today 70
By J. Alvin Kugelmass

New In Science 73, 98

Flying Automobile—'48 Model 74

Hobby Hall Of Fame—Howard Da Silva .. 77

First All-Portable Television Set 78
By Lester David

Inventor's Paradise 80
By Arthur Unger

New For The Sportsman 84

Stratovision Really Works! 85

Are Hot-Rod Racing Boats The Answer? .. 86
By Gerald Taylor White

This Month's Prize Gadget 89

Catching 'Cats' By Hypnotism 90
By Brady Gibbs

MI Tests The New Ford 92
By Tom McCahill

New In The Home 94

Money-Making Idea—Mr. Fixit Went To Town 96

New In The Shop 100

Editor's Workbench 12

Invention Clinic 28

(Continued on page 6)

W. H. FAWCETT, Jr. . . . . President
ROGER FAWCETT . . . General Manager
RALPH DAIGH . . . . . Editorial Director

WILLIAM L. PARKER . . Executive Editor

FEATURE STAFF

GILBERT PAUST . . . . . Feature Editor
FRED HORSLEY . . . . . Science Editor
ARTHUR UNGER . . . . . News Editor

CRAFTS & HOBBIES STAFF

LARRY EISINGER . Crafts & Hobbies Editor
ROBERT BRIGHTMAN . Photography Editor
JOHN KINGDON . . . . . Boating Editor

ART STAFF

FRANK A. TAGGART . . . . . Art Editor
HAROLD E. KELLY . . . . . Art Associate
CLYDE L. BAIRD . . . . . Art Associate

JO O'GRADY . . In Charge of Production

MECHANIX ILLUSTRATED is published monthly by Fawcett Publications, Inc., Fawcett Building, Fawcett Place, Greenwich, Conn. Printed in U.S.A. Advertising and Editorial Offices, 67 West 44th St., New York 18, N. Y. West Coast Representatives: Los Angeles, H. P. Houston, Edward S. Townsend Co., 645 S. Flower St.; San Francisco, Edward S. Townsend, Edward S. Townsend Co., Russ Building. General Offices, Fawcett Building, Fawcett Place, Greenwich, Conn. Eliott D. Odell, Advertising Director; Roscoe K. Fawcett, Circulation Director; Allen E. Norman, Secretary; Gordon Fawcett, Treasurer; Al Allard, Art Director. Entered as second-class matter at the post office at Greenwich, Conn., under the act of March 3, 1879. Additional entry at Louisville, Ky. Copyright 1948 by Fawcett Publications, Inc. Reprinting in whole or in part forbidden except by permission of the publishers. Title registered in the U. S. Patent Office. Address manuscripts to MECHANIX ILLUSTRATED, 67 West 44th St., New York 18, N. Y. All remittances and correspondence concerning subscriptions as well as notification of change of address should be addressed to Circulation Department, Fawcett Building, Fawcett Place, Greenwich, Conn. Not responsible for lost manuscripts or photos. Unacceptable contributions will be returned, if accompanied by sufficient first class postage. Price 15c per copy. Subscription price $1.80 per year in Canada, the United States and possessions. Foreign subscriptions $2.30 per year. Foreign subscriptions and sales should be remitted by International Money Order in United States funds; payable at Greenwich, Conn. Advertising forms close fifth of second month preceding date of issue.

MEMBER AUDIT BUREAU OF CIRCULATIONS

AUDELS REFRIGERATION & AIR CONDITIONING GUIDE.....$4
New from Cover to Cover—1280 Pages, Fully Illus. Covering basic principles, servicing, operation & repair of household, commercial & industrial refrigeration & air conditioning. A gold mine of essential important facts for engineers, servicemen, users.

AUDELS CARPENTERS & BUILDERS GUIDES—4 Vols. $6
A practical illustrated trade assistant on modern construction for carpenters, joiners, builders, mechanics and all woodworkers. 4 vols., 1600 pages, 3700 illustrations, flexible covers. Pocket size. Each volume sold separately $1.50 a vol.

AUDELS AUTOMOBILE GUIDE.....$4
A practical quick ready reference book for auto mechanics, service men, operators & owners. Explains theory, construction & servicing of modern motor cars, trucks, buses & auto type Diesel engines. 1700 pages, fully illustrated. 55 chapters. Indexed. A standard book for mechanics. New fluid drive covered.

AUDELS DIESEL ENGINE MANUAL..$2
A practical, concise treatise with questions and answers on the theory, operation and maintenance of modern diesel engines including General Motors 2 cycle Diesel. 384 pages, fully illus., flexible binding, pocket size. All details plainly brought out, this book is of extreme value to engineers, operators & students.

AUDELS WIRING DIAGRAMS.....$1
210 Pages. Illustrated. Gives practical facts on wiring of electrical apparatus. It shows clearly how to wire apparatus for practically all fields of electricity. Each diagram is complete & self-explanatory. Highly Endorsed Pocket Companion.

AUDELS PLUMBERS & STEAMFITTERS GUIDES—4 Vols. $6
A Practical Trade Assistant & Ready Reference. Explains in plain language & by clear illustrations, diagrams, charts, graphs, pictures principles of modern plumbing practice including Marine Pipe Fitting and Air Conditioning. 4 Vols.—1870 Pages—3042 Diagrams. Pocket size. Each Vol. Sold Separately $1.50 a Vol.

AUDELS SHEETMETAL WORKERS HANDY BOOK.....$1
Practical inside information. Fundamentals of Sheet Metal Work. 388 pages. Illustrated. 11 sections. Clearly written. Essential & important facts, figures, pointers in everyday language. Ref. Index.

AUDELS SHEETMETAL PATTERN LAYOUTS.....$4
Developed by Experts for Sheet Metal Workers, Layout Men & Mechanics. A Practical Encyclopedia in 16 Sections, size 7 x 10 x 2—1125 Pages—350 Layouts—1600 Illustrations. 1001 Key Facts. Fully indexed for ready reference in answering your layout problems. Covers all phases of sheet metal work including Pattern Cutting, Pattern Development & Shop Procedure.

AUDELS ANSWERS ON BLUE PRINT READING.....$2
For Mechanics & Builders. Covers all types of blue print reading including ship & airplane. 416 pages, fully illustrated.

AUDELS NEW MACHINIST & TOOLMAKERS HANDY BOOK.....$4
Covers modern machine shop practice in all its branches. 5 practical books in 1. New from cover to cover. Tells how to set up & operate lathes, screw and milling machines, shapers, drill presses and all other machine tools. 1600 pages, fully illustrated. 5 x 6½ x 2. Indexed. 5 sections. 1—Modern Machine Shop Practice. 2—Blue Print Reading & How to Draw. 3—Calculations & Mathematics for Machinists. 4—Shop Physics. 5—How to Use the Slide Rule. 60 chapters. Easy to read and understand. A shop companion that answers your questions.

AUDELS MATHEMATICS & CALCULATIONS FOR MECHANICS $2
Mathematics for home study or reference. 700 pages, 550 illus. Practical mathematics from beginning. How to figure correctly. Easy, correct methods covering complete review. Illus. & Indexed.

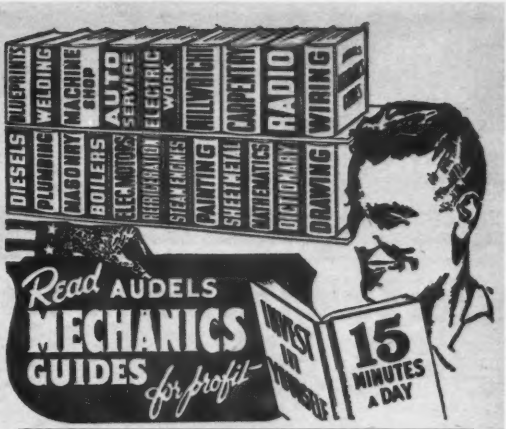
AUDELS HANDY BOOK OF PRACTICAL ELECTRICITY.....$4
For maintenance engineers, electricians & all electrical workers. 1440 Pages, 2600 Illus. Covers important electrical information in handy form—including Marine Wiring, Radio Principles, Welding. Indexed. A Key to a practical understanding of electricity.

AUDELS RADIOMANS GUIDE.....$4
A key to the practical understanding of radio including Frequency Modulation, Television, etc., Aircraft & Marine Radio. For radio engineers, servicemen, amateurs, 914 Pages, 633 Illustrations & Diagrams. Photos. Review Questions & Answers, Reference Index. Authentic, clear, concise.

AUDELS ELECTRONIC DEVICES.....$2
Tells What You Want to Know About Electric Eye. Easily Understood. Covers photo-electric cells & their applications. Amplifiers, illumination, frequencies, voltage, photocell, tubes, Ohm's Law, wiring diagrams, etc.

AUDELS WELDERS GUIDE.....$1
A concise, practical text on operation & maintenance of all welding machines for all mechanics. Over 400 pages, illustrated. Covers all methods of electric and acetylene welding including airplane work.

AUDEL, Publishers, 49 W. 23 St., N. Y. 10



AN AUDEL GUIDE IS A GOOD FRIEND!

Step Up Your Own Skill with the Practical Facts and Figures of Your Trade. Save time and money with right methods, short cuts, labor saving ideas. CHECK NOW! You can look over any Audel Guide in your home. Start the Easy Payments if satisfied.

CUT HERE

MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., New York 10, N. Y.

Please mail me for 7 days' free examination the books marked (X) below. I agree to mail $1 in 7 days on each book or set ordered, and to further mail $1 a month on each book or set ordered until I have paid purchase price. If I am not satisfied with Guides I will return them.

- ☐ Audels HOUSE HEATING GUIDE $4
- ☐ Audels ELECTRIC MOTOR GUIDE 4
- ☐ Audels OIL BURNER GUIDE 1
- ☐ Audels REFRIGERATION & Air Conditioning Guide . 4
- ☐ Audels POWER PLANT ENGINEERS GUIDE 4
- ☐ Audels PUMPS, HYDRAULICS & AIR COMPRESSORS 4
- ☐ Audels WELDERS GUIDE 1
- ☐ Audels BLUE PRINT READING 2
- ☐ Audels SHEET METAL WORKERS Handy Book . . 1
- ☐ Audels SHEET METAL PATTERN LAYOUTS . . . 4
- ☐ Audels AIRCRAFT WORKER 1
- ☐ Audels MATHEMATICS and CALCULATIONS . . . 2
- ☐ Audels MACHINISTS & TOOLMAKERS Handy Book 4
- ☐ Audels MECHANICAL Dictionary 4
- ☐ Audels AUTOMOBILE GUIDE 4
- ☐ Audels DIESEL ENGINE MANUAL 2
- ☐ Audels MARINE ENGINEERS Handy Book . . . 4
- ☐ Audels MECHANICAL DRAWING GUIDE 1
- ☐ Rogers MECHANICAL DRAWING and DESIGN . . 2
- ☐ Audels MILLWRIGHTS and Mechanics Guide . . 4
- ☐ Audels CARPENTERS and Builders Guides (4 vols.) 6
- ☐ Audels PLUMBERS and Steamfitters Guides (4 vols.) 6
- ☐ Audels MASONS and Builders Guides (4 vols.) . 6
- ☐ Master PAINTER and DECORATOR 2
- ☐ Audels GARDENERS & GROWERS GUIDES (4 vols.) 6
- ☐ Audels ENGINEERS & FIREMANS EXAMINATIONS 1
- ☐ Audels ENGINEERS and Mechanics Guides (8 vols.) . 12
- ☐ Audels Answers on Practical ENGINEERING . . . 1
- ☐ Audels ELECTRICIANS EXAMINATIONS 1
- ☐ Audels WIRING DIAGRAMS 1
- ☐ Audels Handy Book of PRACTICAL ELECTRICITY . 4
- ☐ Audels ELECTRICAL POWER CALCULATIONS . . 2
- ☐ Audels ELECTRONIC DEVICES 2
- ☐ Audels ELECTRIC Dictionary 2
- ☐ Audels RADIOMANS GUIDE 4
- ☐ Audels NEW ELECTRIC LIBRARY at $1.50 a Volume Vols. I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII

Name_____

Address_____

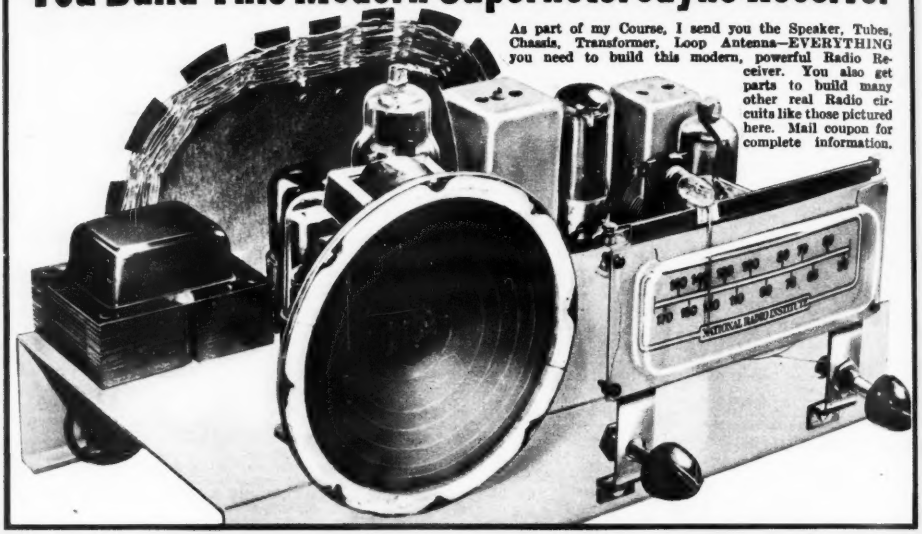
Occupation_____

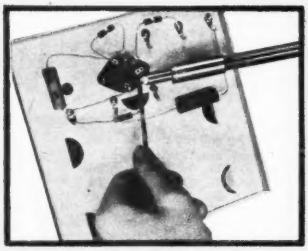
Employed by_____ MM

I Will Show You How to Learn RADIO

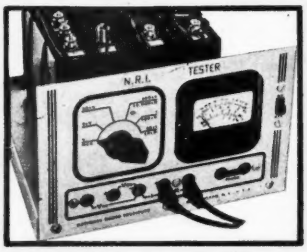
You Build This Modern Superheterodyne Receiver

As part of my Course, I send you the Speaker, Tubes, Chassis, Transformer, Loop Antenna—EVERYTHING you need to build this modern, powerful Radio Receiver. You also get parts to build many other real Radio circuits like those pictured here. Mail coupon for complete information.

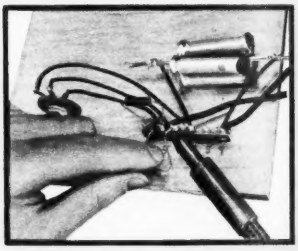




YOU PRACTICE Radio soldering with Soldering Equipment and Radio Parts I send you. Get practical experience mounting and connecting parts.



YOU BUILD this Tester with parts N. R. I. sends early in course. Soon helps you fix neighbors' Radios and EARN EXTRA MONEY in spare time.



YOU TEST Radio Circuits like this built with parts I send. Build special circuits; learn how to locate and repair circuit defects.

MEN I TRAIN AT HOME GET GOOD JOBS LIKE THESE

PURCHASES SHOP

"Long before I graduated, serviced Radios. My shop has latest instruments, all purchased from profits in repairing Radios."—W. A. VAN WAGNER, Syracuse, New York.

MAKES EXTRA MONEY

"I have made enough money in Radio repair to pay for my Course and buy approximately $600 worth of equipment and parts."—R. L. PLUMMER, JR., Savannah, Ga.

RADIO OPERATOR, WRGP

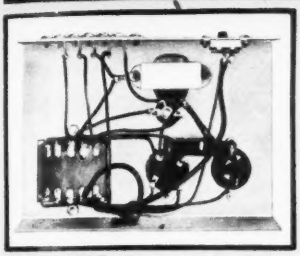
"Thanks for splendid Home Study Radio Course, a large factor in my position as Senior Radio Operator of WRGP." — CHARLES LISTER, Pensacola, Fla.

HAS OWN SHOP

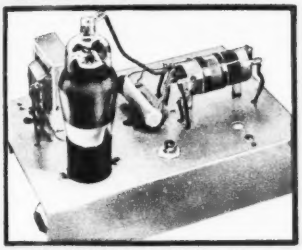
"National Radio Institute trained my brother and me. We now have our own shop and more business than we can handle." —JERRY McCARTHY, Washington, D. C.

by Practicing in Spare Time

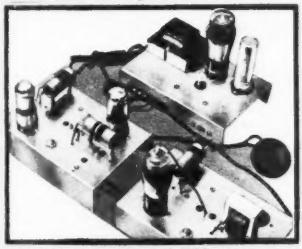
I Send You Big Kits of Radio Parts



YOU BUILD Vacuum Tube Power Pack; make changes which give you experience with packs of many kinds. Learn how to correct Power Pack troubles.



YOU BUILD this A. M. Signal Generator for more valuable experience. It provides amplitude-modulated signals for many tests and experiments.



YOU PRACTICE FM (Frequency Modulation) experiments, get more experience with this Superheterodyne Receiver Circuit you build with parts I send.

KNOW RADIO
Win Success
I Will Train You at Home

Want a good-pay job in the fast-growing Radio and Television-Electronics industries? Want to be boss of your own money-making Radio shop? I've trained hundreds of men *with no previous experience* to be Radio technicians. I can do the same for you! My train-at-home method gives you practical experience with BIG KITS OF PARTS I send. You get Radio and Television principles from easy illustrated lessons. All equipment yours to keep.

VETERANS

You Can Get This Training Under G. I. Bill. Mail Coupon.

Make EXTRA MONEY In Spare Time

The day you enroll, I send EXTRA MONEY booklets. Use your know-how to make EXTRA MONEY fixing Radios in spare time. The next step is your own Radio shop or a good-pay Radio job.

N.R.I.—Trained Men Face Bright Future

Think of money-making opportunities in Police, Aviation, Marine Radio, Broadcasting, Radio Manufacturing, Radio Repairing, Public Address work . . . think of even greater opportunities in booming Television, FM, Electronic fields!

Our 34th Year of Training Men for Success in Radio

See What N.R.I. Can Do For You

My special DOUBLE FREE OFFER gives you actual lesson on Radio repairing short-cuts absolutely free. You also get my 64-page book, "HOW TO BE A SUCCESS IN RADIO-TELEVISION-ELECTRONICS." See how quicky, easily you can get started. Send NOW! J. E. SMITH, Pres., Dept. 8JH, National Radio Institute, *Pioneer Home Study Radio School*, Washington 9, D. C.

SAMPLE LESSON FREE Gives hints on Receiver servicing, locating defects, repair of Loudspeaker, I. F. Transformer, Gang Turner, Condenser, etc. Mail coupon.

My Radio Course Includes
TELEVISION • ELECTRONICS
FREQUENCY MODULATION

Good for Both—FREE

MR. J. E. SMITH, Pres., Dept. 8JH
National Radio Institute, Washington 9, D. C.

Mail me FREE, your Sample Lesson and 64-page book. (No salesman will call. Please write plainly.)

Name.....Age.....

Address.....

City.....Zone.....State.....

☐ Check If Veteran

Approved for Training under GI Bill

✓ Auto Mechanics
✓ Refrigeration Air Conditioning
✓ Body-Fender Repair
✓ Electricity Electronics
✓ Diesel Engines
✓ Radio Servicing
✓ Television
✓ Building Construction
✓ Drafting

The years ahead are going to be big. Grow with them. Prepare now to get into a great, growing industry. Train with C.T.I.—a Nationally Known School. Get the benefits of our efficient Placement Service whether you want a better job or business of your own. You can come directly to our big, well equipped shops, located only a block from the shores of Lake Michigan—or you can begin your training at home by C.T.I.'s SHOP-PROVED HOME TRAINING METHODS. Fill out coupon—mail it today for big, illustrated FREE booklet.

VETERANS!

Just Mail Coupon, we will handle all details. Non Vets don't let the lack of ready cash prevent you from taking this training now. Investigate our Low Easy Payment Plan and our Pay After Graduation Plan.

FREE BOOKLET

COMMERCIAL TRADES INSTITUTE
DEPT. E3-9, 1400 W. GREENLEAF, CHICAGO 26, ILL.

FILL OUT · CUT OUT · MAIL TODAY!

FACTS FREE FOR MEN WHO WANT TO GET AHEAD
COMMERCIAL TRADES INSTITUTE, Dept. E3-9
1400 W. Greenleaf, Chicago 26, Ill.

Send free illustrated Brochures and other information about the field I have checked below.

☐ Refrigeration and Air Conditioning ☐ Automotive Mechanics
☐ Electricity ☐ Diesel Mechanics ☐ Body & Fender Rebuilding
☐ Radio Servicing ☐ Building Construction
☐ Television ☐ Drafting

Name .....
Address .....
City ..... State .....

☐ Veteran ☐ Non-Veteran

Contents

[*Continued from page 2*]

CRAFTS AND HOBBIES

Utility Cabinet 101
Making Steps From Stone 102
Make This High-Gain Antenna 104
Tree Table 106
Fall Is Transplanting Time 107
Duckling 108
Control-Line P-26A 112
Shop Shorts 118
MI's Portable Six-Inch Telescope—Part 3 120
Lathe-Turned Fruit Bowl 124
Icebox For Your Cruiser 126
Car Care 128
Behind The Wheel 129
Module Play Blocks 130
Baby's Bathtub 131
Animated Movie Titles 132
Photo Contest 134
Photo Shorts 136
A Hatful Of Sunlight 138
Darkroom Sink 140

You receive all parts, including tubes, for building this modern Superheterodyne Receiver; and other standard equipment to use and keep.

Learn RADIO

TELEVISION, ELECTRONICS *by* SHOP METHOD HOME TRAINING

Let NATIONAL SCHOOLS of Los Angeles, a practical Technical Resident Trade School for almost 50 years, train you for today's unlimited opportunities in Radio

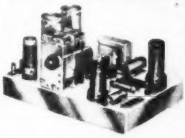
these two **FREE** *books will tell you how*

Good Jobs Await the Trained Radio Technician

YOU are needed in the great, modern Radio, Television and Electronics industry! Trained Radio technicians are in constant and growing demand at excellent pay—in Broadcasting, Communications, Television, Radar, Research Laboratories, Home Radio Service, etc. National Schools Master Shop Method Home Study Course, with newly added lessons and equipment, can train you in your spare time, **right in your own home,** for these exciting opportunities. Our method has been proved by the remarkable success of National Schools-trained men all over the world.

You Learn by Building Equipment with Standard Radio Parts We Send You

Your National Schools Course includes not only basic theory, but **practical** training as well—**you learn by doing.** We send you complete standard equipment of professional quality for building various experimental and test units. You advance step by step until you are able to build the modern superheterodyne receiver shown above, which is yours to keep and enjoy. You perform more than 100 experiments—build many types of circuits, signal generator, low power radio transmitter, audio oscillator, and other units. The Free Books shown above tell you more about it—send for them today!



Lessons and Instruction Material Are Up-to-date, Practical, Interesting

National Schools Master Shop Method Home Training gives you basic and advanced instruction in all phases of Radio, Television and Electronics. Each lesson is made easy to understand by numerous illustrations and diagrams. All instruction material has been developed and tested in our own shops and laboratories, under the supervision of our own engineers and instructors. A free sample lesson is yours upon request—use the coupon below.

Here's a few of the interesting facts you learn with the FREE MANUAL

1. Routine for diagnosing Radio Troubles.
2. Preliminary inspection of Receivers.
3. How to Test and Measure Voltages.
4. How to Test Speaker in Audio Stages.
5. How to Trace the Circuit and Prepare Skeleton Diagram.
6. Complete Reference Table for Quickly Locating Receiver Troubles.

Both Resident and Home Study Courses Offered

APPROVED FOR VETERANS
Check Coupon

New! **NEW PROFESSIONAL MULTITESTER INCLUDED**

This versatile testing instrument is portable and complete with test leads and batteries. Simple to operate, accurate and dependable. You will be able to quickly locate trouble and adjust the most delicate circuits. You can use the Multitester at home or on service calls. It is designed to measure AC and DC volts, current, resistance and decibles. You will be proud to own and use this valuable professional instrument.

NATIONAL SCHOOLS
LOS ANGELES 37, CALIF. EST. 1905

MAIL OPPORTUNITY COUPON FOR QUICK ACTION

National Schools, Dept. MI-9
4000 South Figueroa Street
Los Angeles 37, California

(Mail in envelope or paste on penny postcard)

Mail me FREE the books mentioned in your ad including a sample lesson of your course. I understand no salesman will call on me.

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

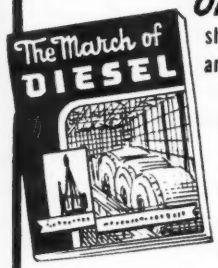
[ ] Check here if veteran of World War II

GET THE DETAILS—SEND THE COUPON

DIESEL OPERATING ENGINEERS and MECHANICS ARE in DEMAND

Train at Home in Spare Time

OR in HEMPHILL SCHOOL'S shops in New York, Memphis and Los Angeles



Get your copy of the book

"MARCH OF DIESEL"

It shows you in pictures and words the great and growing Diesel Industry with its many opportunities for trained men.

HEMPHILL TRAINED MEN KNOW DIESEL

America's oldest and largest Diesel schools have many graduates successfully employed or in own businesses. In construction, farming, marine, oil, power plant and other industries using Diesel engines, you'll find Hemphill trained men.

GET INTO DIESEL

REMEMBER - In a national emergency, trained Diesel men, and those in training, will be in a favored position to render an important service to our nation.

APPROVED FOR VETERANS—NON-VETERANS
CLIP AND MAIL COUPON TODAY!

HEMPHILL DIESEL AND AUTOMOTIVE SCHOOLS
1601 S. WESTERN AVE., DEPT.MI 9-8, LOS ANGELES 6, CALIF.
Gentlemen: Please send me FREE BOOKLET and information on your Diesel Courses. Home Study ☐ Shop Training ☐ at

New York (31-28 Queens Blvd., L. I. City, N. Y.) ☐

Memphis (311 S. Main St.) ☐ Los Angeles ☐

NAME_____ AGE_____

STREET_____ ZONE_____

CITY_____ STATE_____

VETERAN_____ NON-VETERAN_____

Get into BUSINESS for *Yourself!*

METALIZING BABY SHOES AT HOME IN SPARE TIME

Get facts about amazing money-making *Warner Success Plan* that shows you every easy step in completely charted path to personal independence—with your home as your headquarters . . . This proved and tested Plan is working like magic. It's backed by an old, reliable company . . . And we send it to you on a No-Risk Trial Money Back Guarantee.

QUICK CASH WAITING

Demand for METALIZED Baby Shoes and other keepsakes is growing bigger daily. Our Tested Plan Shows How to Do the Work, How to Bring in the Business, How to Make as much as $5 an Hour. Spare or full time, big steady profits are waiting for you. Send penny postcard or mail coupon for FREE Facts. Act! Time is precious.

FREE offer of COMPLETE MONEY MAKING PLAN • SEND NO MONEY Just Mail COUPON

Ray Brandell, Mgr., Warner Electric Co.,
1512 JARVIS AVE., DEPT. 69. CHICAGO 26, ILL.

Please rush complete details about your No-Risk Trial Money Back Plan for Metalizing Baby Shoes. Everything you send is FREE and costs me nothing—now or ever.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Do you want

..to go to College?

..or to enter a Profession?

(Such as Accounting, Architecture, Nursing, Dentistry, Teaching, Social Work, Osteopathy, Beauty Culture, Optometry, Embalming, Chiropody, Law, Medicine, etc.)

..or get an Office Position?

To get anywhere, you practically MUST finish High School FIRST. You can complete our simplified High School Course in SPARE time at home, as FAST as your time and abilities permit. Equivalent to resident school work—prepares you for college, pre-professional examinations, business, industry. Standard texts furnished. Diploma. Credit for H.S. subjects already completed. Single subjects if desired. Low tuition, easy terms. American School, Chicago, est. 1897—endorsed by educators. Finish your high school education NOW. Write TODAY!

High School Course at Home

Many Finish in 2 Years

American School, Dept. H628 Drexel Ave. at 58th St., Chicago 37, Ill.

Gentlemen: Send me FREE information covering special training in subjects checked below. No obligation on my part.

- ☐ High School Course
- ☐ Electronics, Industrial
- ☐ Architecture and Building
- ☐ Automotive Engineering
- ☐ Business Management
- ☐ Electrical Engineering
- ☐ Elec. and Gas Refrigeration
- ☐ Air Conditioning
- ☐ Railway Training
- ☐ Diesel Engineering
- ☐ Drafting and Design for Men and Women
- ☐ Plastics
- ☐ Private Secretary
- ☐ Mechanical Engineering
- ☐ Aviation ☐ Radio
- ☐ Salesmanship

Name .....

Address .....

INVENTORS

Learn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

CLARENCE A. O'BRIEN & HARVEY JACOBSON

Registered Patent Attorneys

83-J DISTRICT NATIONAL BUILDING • WASHINGTON 5, D. C.

Patents

Trademarks

Copyrights

CLARENCE A. O'BRIEN & HARVEY JACOBSON
Registered Patent Attorneys
83-J District National Bldg., Washington 5, D. C.
Please send me copy of "Patent Guide for the Inventor" and also "Record of Invention" form. This request does not obligate me.

Name_____

Address_____

City_____ State_____
(Please write or print plainly.)

BE A CLERK *all my life?* NOT ME!!

Of course you say you won't.

But you may be unless you do something about it.

Hoping and wishing won't get you a better job and more money.

You must prepare for that step ahead—be ready to make promotion come.

We have helped thousands of ambitious men and women get ahead in the business world—perhaps we can help you.

At least you should investigate. It may be the turning point in your life to a better job and more money. So send the coupon without delay. Check the field of your choice and we'll send you without obligation the requirements and opportunities in that field—plus "Ten Years' Promotion in One"—a book which has helped many men.

LASALLE EXTENSION UNIVERSITY
A Correspondence Institution
Dept. 9493-R Chicago 5, Ill.

LASALLE Extension University
A Correspondence Institution

417 S. Dearborn St., Dept. 9493-R, Chicago 5, Ill.

I want to know whether you can help me get ahead in the field I have checked below. Send free 48-page booklet and full information about your home-study training—plus "Ten Years' Promotion in One."

- ☐ **Higher Accountancy**
- ☐ **C.P.A. Coaching**
- ☐ **Bookkeeping**
- ☐ **Law: LL.B. Degree**
- ☐ **Business Management**
- ☐ **Salesmanship**
- ☐ **Traffic Management**
- ☐ **Foremanship**
- ☐ **Industrial Management**
- ☐ **Stenotypy (Machine Shorthand)**

Name..... *Age*.....

Address .....

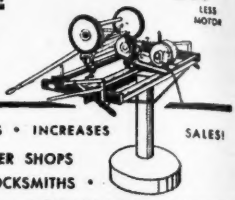
City..... *Zone*..... *State*.....

MODERN LAWN MOWER SHARPENER

FOR PROFITS!

FOR SPEED!

PRICE $241.50 LESS MOTOR



INCREASES PROFITS • INCREASES SALES!
FOR LAWN MOWER SHOPS
FIXIT SHOPS • LOCKSMITHS •
HARDWARE STORES • GOLF COURSES • SCHOOLS
PARKS • PLAYGROUNDS • INSTITUTIONS •
CEMETERIES • AND ALERT INDIVIDUALS!

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling
No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments.

ORDER NOW
Immediate Delivery

Skate Sharpener Attachment Available
½ H.P. 60-Cycle G.E. Motors
Now Available—$21.50
Send For Free Bulletin No. 12B

MODERN MFG. CO. 300 N. FAIR OAKS AVE. PASADENA 1, CALIFORNIA

EVEN IF YOU DON'T KNOW A NOTE OF MUSIC NOW...

YOU CAN LEARN YOUR FAVORITE INSTRUMENT THIS EASY A-B-C WAY

● No special talent, no previous training needed. This U. S. School home-study method is so successful because you learn to play by playing real tunes by note right from the start. And just think, you can learn your favorite instrument for only a few cents a day! If interested, mail coupon for FREE Booklet and Print and Picture Sample. See for yourself how easy it is to learn any instrument, right at home, in spare time, without a private teacher. U. S. SCHOOL OF MUSIC, 979 Brunswick Bldg., New York 10, N. Y.

FREE! *Print and Picture Sample*

U. S. School of Music, 979 Brunswick Bldg., New York 10, N. Y.

Please send me FREE Print and Picture Sample and Illustrated Booklet. I am interested in the instrument checked below.

Piano	**Piano Accordion**	**Tenor Banjo**
Guitar	**Saxophone**	**Modern Elementary Harmony**
Violin	**Trumpet, Cornet**	**Other Instrument**

Name ..... (Please Print)

Street .....

City ..... State.....

These Men are Learning

ELECTRICITY

on REAL EQUIPMENT

in the GREAT SHOPS of COYNE

Why Spend Years Preparing for a Good Job? Train Quickly at COYNE—Be Making Real Money While Others are Still Puttering Along!

B. W. COOKE

Yes, you can get ready for Good Pay—a Big Future in ELECTRICITY—by coming to COYNE in Chicago to train on actual equipment! Here you work on real motors, armatures, switchboards—do actual wiring and trouble-shooting—get the "all-around" training you need.

Not a "Home-Study" Course

We do not teach by mail. All training is given in our Great Shops, plus necessary theory. Expert instructors guide you. No advanced education or previous experience needed.

EARN WHILE LEARNING

If you need part-time work to help out with living expenses while at Coyne, we'll help you get it. Don't be held back by lack of money.

Electrical Refrigeration Included

Added training now included in great new field of Electric Refrigeration—Industrial Electronics also included. Both mean added opportunities.

GI Approved—Finance Plan for Non-Vets

COYNE is authorized to train men under the G.I. Bill. Non-veterans may enroll now, pay most of tuition after graduation. Whatever your problem, COYNE can help you! Mail the coupon now.

GET THE FACTS!

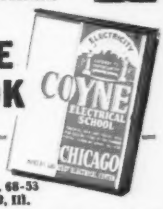
BIG FREE BOOK tells all about your future in Electricity and how you can get ready quickly at COYNE. Dozens of pictures. Rush coupon today!

PREPARE FOR PERMANENT JOBS LIKE THESE

Light and Power Wiring
Power Plant Work
Armature Winding
Substation Operator
Maintenance Electrician
Electrical Testing
Signal Maintenance
Industrial Electronics
Electric Refrigeration
and many others

Our Employment Bureau for graduates gives FREE Lifetime Job Service.

FREE BOOK



B. W. COOKE, Pres.
COYNE ELECTRICAL AND RADIO SCHOOL, Dept. 68-53
500 S. Paulina St., Chicago, 12, Ill.

Send me your big FREE BOOK on ELECTRICITY and tell all about your training offer. This does not obligate me in any way and no salesman will call on me.

NAME.....

ADDRESS.....

CITY.....STATE.....

COYNE ELECTRICAL AND RADIO SCHOOL

B. W. COOKE, Pres.

500 S. Paulina St., Dept. 68-53, Chicago 12

This modern fireproof building is occupied entirely by COYNE. Located in Chicago, the Electrical Center of the World.

FOUNDED 1899

MAIL NOW

The Editor's Workbench

MI's Portable Telescope

There's something about the stars (the ones up there in the sky, not the Hollywood brand) that has intrigued men and women for thousands of years. It's difficult for us to realize that only about four hundred years ago the whole civilized world was thrown into turmoil when a Polish astronomer named Nikolaus Copernicus (1473-1543) proved that our earth was not the center of the universe, as people had believed for centuries, but that the globe we live on is only one of many that revolve around the sun. A hundred years later (in 1609) man's knowledge of the stars and planets made another revolutionary advance when the Italian astronomer Galileo Galilei (1564-1642) invented the first telescope.

Ever since then scientists have used all their ingenuity and skill to build bigger and more powerful telescopes, climaxing their efforts (until a larger one comes along) this spring with the installation on Mt. Palomar, California, of the mightiest of them all—a 200-inch reflector-type marvel that brings the celestial world closer to earth than human eye has ever seen it before. That was a big news story too, as you know.

Astronomy a dead science? Not by a long shot. We can truthfully say that we "knew it all along"—but dramatic proof of man's ever-increasing interest in star-gazing came to the editors of MI immediately following publication in our July, August and September issues of a three-part article describing how to build a portable, six-inch telescope for less than $30.00. (The Palomar monster cost $6,500,000!) Literally hundreds of letters have been pouring into our editorial offices asking for further information about our telescope, which was designed by Bob Brightman, MI's photography editor.

Astronomy a dead science? Not if those letters, packed with real enthusiasm, mean anything. To us they offer tangible proof of the very intense interest of Americans in an ancient but increasingly fascinating subject. And the editors of MI are proud of the fact that our magazine has established itself as the foremost promoter of a practical, absorbing hobby that lies well within the means and capabilities of every craftsman.

[*Continued on page* 18]

MI's portable telescope will cost you less than $30 to build. Here, Helen Bezold inspects it.

I'LL TRAIN YOU AT HOME—BETTER—FASTER
by Putting You to Work with Your Hands

You build this complete 16-range AC-DC test meter set-up.

I show you how to build this speaker tester and many other instruments.

You build, test and trouble-shoot this powerful 6-tube superhet Radio.

In this picture I show you exactly what you'll get from me during your Sprayberry Radio Training. This actual photograph speaks for itself! Sprayberry Radio Training is ***really*** **COMPLETE**—I start you with interesting, easily understood basic knowledge and I keep the mailman busy bringing you valuable Service Manuals, profitable Business Builders, extra helps and books—and **8 Big Kits of Actual Radio Equipment!** My course is practical and down-to-earth. You get my personal help every step of the way. My method is BEST for you—because you train largely by working with your hands—building, testing, trouble-shooting with parts I supply. With these kits you build a powerful 6 tube superhet Radio, a big 16 range test meter and perform over 175 other fascinating practical experiments.

EARN WHILE LEARNING

Shortly after you enroll I send you my famous BUSINESS BUILDERS that help you get and do profitable neighborhood Radio Service jobs while learning. These jobs pay well, and pave the way for a Radio Service Business of your own and give you valuable experience for any branch of Radio.

All branches of Radio, Television and Electronics are booming! Trained men are needed NOW! I'll prepare you for your own profitable Radio Service Business or a big pay radio job in double quick time. You learn at home in spare time—you keep your present job and income while getting set for the future.

My course is so perfectly planned—so easy to grasp and understand—you need no previous knowledge or experience of Radio or Electricity. Get the facts now—find out what Sprayberry Radio Training can do for **you.** Mail the coupon below and by return mail I'll rush my big book, "How To Make Money In Radio, Electronics and Television" that tells all about Sprayberry Training. I'll also send you a Sample Lesson, "How To Read Radio Diagrams and Symbols"—all FREE. You'll read many letters from successful Radio men I've trained—and you can decide for yourself what Sprayberry Training holds in store for you.

LOW COST *Complete* TRAINING

Spayberry Training is surprisingly Low In Cost—and if you desire, convenient monthly payments can be arranged. This is COMPLETE, UP-TO-DATE training—covering Radio Repairing, Television and F. M., Industrial Electronics and many other new developments. Sprayberry Trained men really know Radio. This is training that sticks with you and makes money for you.

FREE SAMPLE LESSON *and Big Catalog*

See how quickly and easily you can get your start in Radio, Electronics, Television with Sprayberry Training. Just fill out, clip and mail the coupon NOW for my big FREE book and FREE Sample Lesson. No obligation. No salesman will call. Read all the facts about Sprayberry Training—then decide. Take the first step TODAY—rush the coupon to me.

VETERANS: Approved for G. I. Training under Public Laws 16 and 346. Check coupon and mail today for complete facts.

SPRAYBERRY ACADEMY OF RADIO
FRANK L. SPRAYBERRY, President
Room 1598, SPRAYBERRY BUILDING, PUEBLO, COLORADO

Mail **COUPON** *Today!*

FRANK L. SPRAYBERRY, President
SPRAYBERRY ACADEMY OF RADIO,
1598 Sprayberry Building, Pueblo, Colorado
Rush my FREE copies of "How To Make Money In Radio, Electronics and Television" and "How To Read Radio Diagrams and Symbols." (No salesman will call.)

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ *Check here if a Veteran.*

Paint Your Car!

AND 1001 OTHER ITEMS

AMAZING NEW

"Super" CARONIZE

FACTORY-FINISH TYPE

AUTO ENAMEL

One Quart Covers! One Hour to Apply! One Hour to Dry!

Just Wipe it on!

Handy Applicator INCLUDED AT NO EXTRA COST

Makes Your Old Car Gleam Like New!

Now you can quickly and easily make your old car look almost NEW! Just give it a speedy coat of new "SUPER" CARONIZE. With "SUPER" CARONIZE all back-breaking labor is eliminated . . . NO BRUSHING, SPRAYING, MASKING, BUFFING OR SCRAPING is necessary. Simply clean car and WIPE ON this sensational new fast-drying paint. In just a short time, your car will GLEAM with a mirror-bright finish that LASTS FOR YEARS. "SUPER" CARONIZE won't peel, crack, chip in spite of rain, snow or sun.

ONLY $2.95 Enough to Paint Almost Any Auto

THE RESULT OF MONTHS OF LABORATORY RESEARCH!

"Super" Caronize smoothly covers your car because it contains genuine THERMOREZ, the very same type synthetic resin as is used in finishing newest cars. If you are getting a new car, a brilliant "Super" Caronize finish may increase your trade-in value $100 and more.

Guaranteed 3 FULL YEARS

The only wipe-on enamel in America that gives you a 3-year WRITTEN guarantee against chipping, cracking or peeling when applied according to directions.

16 CHOICE OF BEAUTIFUL NEW COLORS

Black • Maroon • "Fiery" (Bright) Red • Cloud Grey • "Washington" (Dark) Blue • Brewster (Dark) Green Monticello (Light) Blue • Jewel (Light) Green • Orange • "Lettuce" (Very Light) Green • Light Yellow • Tan Ivory • Chrome • Clear • White

"Super" Caronize White is absolutely non-yellowing

SEND NO MONEY

RUSH ORDER TODAY!

Use coupon below. Send us your color choice today! Pay postman only $2.95 plus postage. Or send cash and we pay postage.

AMAZING FOR AUTOS and 1001 OTHER PAINT USES

AT HOME

Caronize colors are wonderful for all refrigerators, gas stoves, furniture. All porcelain, metal and wood surfaces. "Super" Caronize Clear gives a durable coating to floors, linoleum and all household woodwork.

OUTDOORS

Perfect for all lawn furniture, swings, bird-baths and other items of this type. Also recommended for boats, canoes, etc.

ON THE FARM

Durable for tractors and all other kinds of farm implements, dairy and utensil uses.

STORES AND OFFICES

Excellent for desks, table tops, files and 1001 other uses in stores, shops, taverns, beauty parlors, offices, etc.

Fill Out and Mail This Coupon Today! Send No Money!

Please send me ..... qts. of "Super" Caronize at $2.95 per qt.

COLORS:

NAME ..... (Please Print)

ADDRESS .....

CITY..... STATE.....

☐ Send Postpaid, remittance enclosed ☐ Send C. O. D. plus postal charges

CARONIZE, INC. DEPT. M18 1801 Singleton Ave. St. Louis 3, Mo.

THE ONLY WIPE-ON ENAMEL IN AMERICA GUARANTEED FOR 3 FULL YEARS!

INVENTORS

Patent laws encourage the development of inventions.

We recommend that an inventor employ a registered Patent Attorney or agent, if the inventor is not familiar with patent matters. This is because the value of a patent depends largely upon the skillful preparation of the specification and claims in the patent application.

The firm of McMorrow, Berman and Davidson is registered to practice before the United States Patent Office. Additionally it engages patent attorneys able to readily understand inventors' disclosures, to advise concerning patentability, and to prepare appropriate specifications and claims.

If an inventor believes he has an invention, a search of the most pertinent prior U. S. patents should be made and a report obtained relative to its patentability. Where such report indicates that the invention appears patentable, in order to secure protection, diligence should be exercised in making application for a patent.

Send for a copy of Patent Booklet entitled "How To Protect Your Invention." This booklet contains information on patent protection and procedure. You will also receive an "Invention Record" blank. This will be promptly forwarded to you upon request—no obligation.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

PATENTS • TRADE MARKS • COPYRIGHTS

139-M VICTOR BUILDING, WASHINGTON 1, D. C.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

139-M Victor Building, Washington 1, D. C.

Send me your Patent Booklet, "How To Protect Your Invention", and also "Invention Record" form at once. I understand this request does not obligate me.

Name.....

Address.....

City.....

(WRITE OR PRINT NAME CLEARLY)

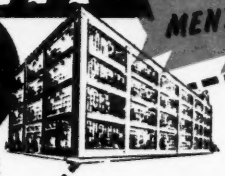
AMERICA'S GREATEST ELECTRICAL SCHOOL OFFERS YOU

MORE EQUIPMENT! MORE SPACE! MORE TRAINING!

OVER 1000 PIECES of ACTUAL ELECTRICAL EQUIPMENT to WORK ON!

Learn ELECTRICITY

In NATION'S LARGEST EXCLUSIVE ELECTRICAL SCHOOL



It's Easy - "LEARN-BY-SEEING" MOVIES
It's Fast - "LEARN-BY-DOING" METHODS

and its THOROUGH! . . . There is *no other place—no other way* to get the same all-around training you get at M.T.I. NOT A HOME STUDY COURSE! . . . You get actual "hands-on-equipment" training in great MODERN SHOPS in Detroit. No previous experience necessary. Learn HOUSE WIRING, A.C., D.C. MOTORS, ARMATURE WINDING, POWER PLANT WORK, etc. New classes start every few weeks. Part time work available. Living arrangements made.

NO COST TO VETERANS *Train at Gov't. expense. Receive $75 to $120 month while learning. Coupon brings details.*

MICHIGAN TECHNICAL INSTITUTE
Department MI-9 2281 West Fort Street, Detroit 16, Michigan

MAIL TODAY FOR QUICK ACTION!

MICHIGAN TECHNICAL INSTITUTE, Dept. MI-9
2281 W. Fort St., Detroit 16, Michigan

☐ Send me catalog and complete information.
☐ I am a GI. Send special information.
☐ Married. ☐ Single.

NAME _____
ADDRESS _____
CITY _____ ZONE ____ STATE ____

EARN HIGH PAY ALL YOUR LIFE • BE SECURE ALL YOUR LIFE!

Learn one of these 5 LEADING TRADES

"There's Always A Demand For The Man Who Knows"

Be a Qualified Tradesman in 34 weeks (39 in Shoe Repair).

These Essential Trades are Lifetime Trades —No Age Limit—No Retirement.

Own Your Own Business—Be Independent.

Our Courses offer complete training under expert instructors with practical experience. 6 hour Classes 5 Days a Week. Our Employment Department Helps You.

VETERANS: National Trade School is approved for G. I. Training under P. L. 346 and P. L. 16.

- **PLUMBING:** Every phase from Pipe-Cutting and Threading, Lead-Wiping, to Rough-in Projects, and Completed Installations of entire plumbing system; Blueprint reading and Estimating.
- **DRAFTING:** College-level courses in General Machine and Architural Drafting; fundamentals in Drafting Mathematics; all under graduate engineers.
- **SHOE REPAIRING:** From simplest repairs on boots and shoes to finest details of reconditioning and rebuilding.
- **ELECTRICAL:** Technical and Shop Training include Basic Electricity, Residential and Industrial Wiring; Testing and Trouble Shooting, and Appliance repair.
- **AUTOMOTIVE & TRACTOR:** Engine overhaul, transmission and differentials, carburetion, generator and ignition systems, engine tune-up; Hydramatic and Vacamatic Transmissions and general service; latest models used for training.

SEND COUPON FOR FREE INFORMATION NOW, while enrollment is still open

NATIONAL TRADE SCHOOL
2610 Grand Ave., Kansas City 8, Mo. Dept. D

Without obligation to me please send full information on the courses checked:

____ Automotive and Tractor Technician ____ Drafting
____ Plumbing ____ Electricity ____ Shoe Repairing

Name _____ Age ____
Address _____
City _____ State ____
Veteran? _____

Do you want to:

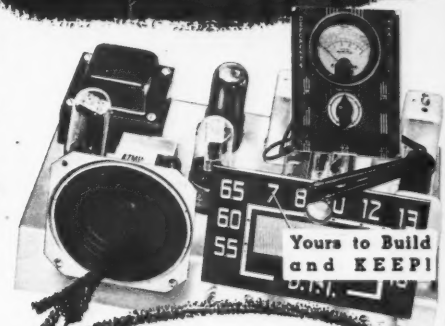
1. Make Good Money?
2. Have a Real Job?
3. Build for Future Security?
4. Have Your Own Business?

THEN get the facts about OUR GREATEST OFFER IN 17 YEARS . . . to help you learn *TELEVISION.. RADIO..ELECTRONICS*

IN YOUR OWN HOME

Here's good news...big news...our BIGGEST NEWS in 17 years. Now you get and keep many shipments of Radio-Electronic parts... work over 200 "Learn-By-Doing" Experiments... build and keep a quality 6-tube "Super" Receiver with Magic Tuning Eye... build and keep a commercial-type, jewel-bearing Multi-Meter . . . use fascinating, instructive HOME MOVIES to help you grasp important points faster, easier . . . get real Employment Service.

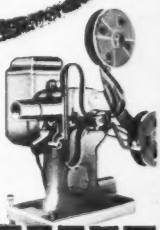
Mail coupon below. Get the complete story. See how we do BOTH—(1) Prepare, then (2) Help you get started in America's thrilling Radio-Television-Electronic field.



Using the many shipments of parts and assemblies (*left*), you build and keep this 6-tube "Superhet" Receiver and jewel-bearing Multi-Meter (*above*) to give you practical experience AT HOME in *ASSEMBLY...WIRING . . . SOLDERING . . . TESTING . . . TROUBLE SHOOTING!*

LEARN FASTER . . . EASIER

RIGHT: You receive the loan of a 16mm. Motion Picture Projector and many reels of "Learn-By-Seeing" film to speed your understanding of important points. You get this remarkably effective training aid ONLY from D.T.I.



TRAIN IN CHICAGO LABS

If you prefer, you can get all of your training in our modern, wall-equipped Chicago Laboratories. Write for all the details . . . there is no obligation.

MAIL TODAY!

DeForest's Training, Inc.
2533 N. Ashland Ave., Dept. MI-E3
Chicago 14, Illinois

Send me complete details showing how I may make my start in Radio-Electronics-Television. No obligation.

Name _____ Age _____

Address _____ Apt. _____

City _____ Zone _____ State _____

☐ If under 16, check here for special information.

☐ If a discharged veteran of World War II, check here.

DeFOREST'S TRAINING, INC.

CHICAGO, ILLINOIS

Associated with DeVry Corporation, Builders of Electronic and Movie Equipment

BE A WINNER AT ANYTHING YOU TACKLE WITH PROGRESSIVE POWER!

Now ALL 5 FAMOUS JOWETT COURSES in 1 Volume for only 25¢

"The Jowett System is the greatest in the world!" says R. F. Kelly, Physical Director, Atlantic City

Let's Go, Pal! I'll prove I can make YOU an "ALL-AROUND" HE-MAN

Fast—or No Cost! says George F. Jowett, World's Greatest Body Builder

Enjoy My "Progressive Power" Strength Secrets! Give Me 10 Easy Minutes A Day—Without Strain!

I'll teach you the "Progressive Power Method" through which I rebuilt myself from a physical wreck the doctors condemned to die at 15, to the holder of more strength records than any other living athlete or teacher! "Progressive Power" has proven its ability to build the strongest, handsomest men in the world. And I stand ready to show you on a money back basis—that no matter how flabby or puny you are I can do the same for you right in your own home. Let me prove I can add inches to your arms, broaden your shoulders, give you a man-sized chest, powerful legs and a Rock-like back—in fact, power pack your whole body so quickly it will amaze you! Yes, I'll jam you with power and confidence to master any situation—to win popularity—and to get ahead on the job! Through my proven secrets I bring to life new power in you inside and out, until YOU are fully satisfied you are the man you want to be.

PROVE IT TO YOURSELF IN ONE NIGHT

Send only 25c for my 5 easy-to-follow, picture-packed courses now in 1 complete volume "How to Become a Muscular He-Man." Try it for one night! Experience the thrilling strength that surges through your muscles.

George F. Jowett

Whom experts call "Champion of Champions" • World's wrestling and weight lifting champ at 17 and 19 • World's Strongest Arms • 4 times World's Perfect Body—plus other records!

10-DAY TRIAL!

Think of it—all five of these famous courses now in one picture-packed muscle building volume for only 25c. If you don't actually FEEL results within ONE WEEK send it back and your money will be promptly refunded!

I am making a drive for thousands of new friends fast—REGARDLESS OF COST!

SO GET NOW MY 5 Muscle Building COURSES (Valued at $5 each)

All in 1 Great Complete Volume Packed With How-To-Do-It Pictures!

Now, this "get-acquainted," extremely low price of only 25c is your chance to build a body you'll be proud of! Follow Jowett's easy method of muscle building NOW!

For Only 25c

FREE! Photos that inspire you to might and muscle. Free with order.

Photo Book Of Famous Strong Men!

FREE GIFT COUPON!

Jowett Institute of Physical Culture
230 Fifth Avenue, New York 1, N. Y. Dept. MI-89

George F. Jowett Champion of Champions

Dear George:—Please send by return mail, prepaid, FREE Jowett's Photo Book of Strong Men, along with all 5 Muscle Building Courses. 1. Molding a Mighty Chest. 2. Molding a Mighty Arm. 3. Molding a Mighty Grip. 4. Molding a Mighty Back. 5. Molding Mighty Legs—Now all in One Volume "How to Become a Muscular He-Man." Enclosed find 25c. NO C.O.D.'s.

NAME _____ AGE _____
(Please Print Plainly, Include Zone Number)

ADDRESS _____

The Editor's Workbench

[*Continued from page 12*]

We have prepared a complete list of manufacturers from whom you can obtain all the optical supplies necessary to build the MI Portable Six-Inch Telescope. If you want one, free, just drop a line to Astronomy Editor, MECHANIX ILLUSTRATED, *67 West 44th Street, New York, 18, N. Y.*

Jeep Convertible

Dear Editor:

Here's my version of the *Jeep Sportsman Convertible.* The body consists of aircraft mahogany plywood trimmed in solid maple. The body lines were attained by a heavy oak frame bolted to the original Jeep body. The windshield is a three-unit affair made of solid maple and the top was constructed over a light oak frame heavily padded to give smooth lines. It is detachable by the removal of five wing screws.

The original seats were removed and a lower full seat (capacity: four people, side by side) was made with coil springs and airfoam rubber padding. The gasoline tank was replaced by a new tank in the inside rear compartment, in which the spare tire is also carried.

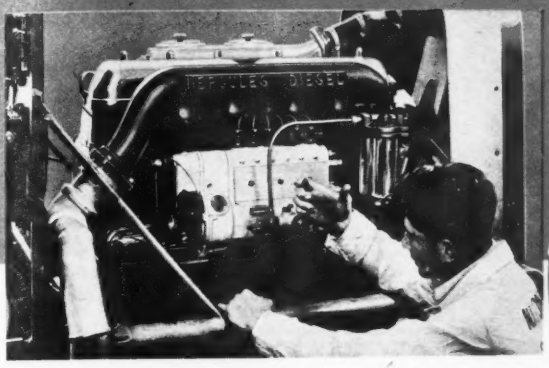
Surprising as it may seem, the new body has added five mph to the top speed. The cost was less than $100.00 and time spent in construction amounted to three evenings a week for five months.

Arnold Forsman
1837 23rd Ave.
San Francisco 22, Calif.

And time very well spent indeed, Arnold. That's a professional looking job if ever we saw one. Here's wishing you lots of fun with it.

LEARN DIESEL AUTOMOTIVE AND ALLIED MECHANICS

at Home in Spare Time



Those Two FREE BOOKS will tell you how

Good pay and interesting job opportunities in the Diesel industry!

Diesel engines are used in locomotives, tractors, farm machinery, stationary and portable power plants, oil pipeline pumping stations, Diesel trucks and buses, power shovels, excavating machinery and many other applications. Trained Diesel and automotive mechanics are in steady and growing demand to install, maintain and repair Diesel, semi-Diesel, and gasoline engines in these and other fields. Or you can operate your own service shop or commercial garage!

You Can Qualify for These Opportunities with National Schools' Master Shop Method Home Training!

Behind all National Schools' training is a permanent faculty of experienced instructors and engineers who supervise your home study. We teach you Diesel-electric; Internal Combustion Engines (including Diesel, Gasoline and Butane Types); High-octane fuels; advanced engine principles, etc. Your instruction material is interesting, well-illustrated, easy to understand . . . and *complete*!

Complete Training in Automotive and Allied Mechanics

Your course also teaches you basic and advanced gasoline engine principles, construction, repair, chassis units, drive systems, motor tune-up, etc. Your progress is rapid, but thorough.

We Qualify You in Specialized Fields

As a National Schools graduate, you are thoroughly grounded not only in basic engine principles, but also are fully qualified to specialize in Diesel fuel injection, automotive carburetion, ignition, and motor tune-up. You are not just a "grease monkey," but a technically trained, and well-rounded mechanic!

Earn While You Learn

With our Master Shop Method Home Training, you study at home in your spare time. You need not interrupt your present job. You receive Spare Time Work Lessons which enable you to earn while you learn!

Some of the Interesting Positions Open to Trained Diesel and Automotive Mechanics:

- Diesel Automotive Dealer, Shop Owner, Foreman, Superintendent
- Diesel Power Plant Operator or Maintenance Engineer (Hotels, Factories, Office Bldgs., Pumping and Irrigation plants, plants, farms and ranches.)
- Diesel Fuel Injection Man
- Automotive Carburetion and Ignition Man (Motor Tune-Up)
- Diesel-Automotive Sales
- Marine Diesel-Automotive Engineer
- Truck or Bus Emergency Mechanic
- Technicians and Mechanics for special work according to type of equipment handled.
- And many others

Act Now! It costs you nothing to get complete information. Send the coupon for the Free Sample Lesson and Big Illustrated Book "Your Future in Diesel." You will enjoy these valuable books. Both Home Study and Resident Training Offered.

Approved for Veterans

CHECK COUPON BELOW

NATIONAL SCHOOLS

LOS ANGELES 37, CALIF. • EST. 1905

MAIL OPPORTUNITY COUPON FOR QUICK ACTION

National Schools, Dept. MID-9
4000 South Figueroa Street
Los Angeles 37, California

(Mail in envelope or paste on penny postcard)

Mail me FREE the book, YOUR FUTURE IN DIESEL, together with the Sample Lesson. I understand I may keep and use the information with no obligation.

Name _____ Age___

Address _____

City _____ Zone___ State_____

☐ Check here if Veteran of World War II

Learn RADIO -TELEVISION

in the GREAT SHOPS OF COYNE

Get ready for a better job, bigger pay NOW in Radio. Cash in with "All-around" knowledge of Radio–Television–F.M. Coyne is G.I. Approved. Finance plan for non-veterans. Many earn while learning. Free employment service to graduates. Thousands of graduates in Industry.

Not a "Home-Study" Course!

You get actual shop work on full-size equipment plus necessary theory. You learn easier and quicker at **Coyne** because it's real shop training.

SEND FOR FREE BOOK

Get the facts! BIG FREE BOOK tells about your future in **Radio** and **Television** and how you can prepare at Coyne. Dozens of pictures. No obligation—no salesmen will call.

Established 1899

MAIL COUPON TODAY!

B.W. COOKE, President
COYNE Electrical and Radio School
500 S. Paulina St., Dept. 68-1H, Chicago 12, Ill.

Please send me your Big Free Radio and Television Book and all the facts.

NAME .....

STREET .....

CITY ..... STATE .....

No Shop Needed

Operate YOUR OWN Business

Clean and Mothproof Rugs and Upholstery

Can you qualify? . . . If you are dependable, honest and willing to work, send for FREE Booklet explaining how you can become "your own boss" in a growing business of your own. You'll use proven successful methods of established DURACLEAN Dealers. Service rendered "in the home," offices and public buildings. Easy to learn.

DURACLEAN cleans by absorption! No scrubbing. No soaking or shrinkage. Fabrics dry in just a few hours. Dirt, grease and many unsightly spots vanish as if by magic . . . colors revive. Upholstery and floor coverings last longer.

DURAPROOF kills moths and carpet beetles. Makes material resistant to both! Another year 'round service. DURAPROOF, to our knowledge, is the only moth proof service backed by a National Money Back, 4 YEAR WARRANTY. Guards against mildew, too.

These services are Nationally Advertised! Leading furniture and department stores recommend DURACLEAN Dealer's service. Almost every building in your territory houses a potential customer. Even auto dealers buy your service to revive upholstery in used cars.

Some dealers establish a shop or an office after business has grown. Others continue to operate from their own home. Profits up to $15 and $20 for a day's service on EACH of your service men.

Territories are limited! Write immediately for FREE Booklet and Easy Terms.

DURACLEAN CO., 17-9 CT., DEERFIELD, ILL.

For Men Who are Trained in AUTO BODY & FENDER WORK

Men 18 to 60. Want a future with good pay, perhaps a business of your own later? If you are mechanically inclined, start now to learn to become an auto body mechanic and fender repair man. This fast growing field has great possibilities for trained men with experience. U.E.I. spare time, home-study training combined with actual shop practice gives you sound, basic knowledge of latest, best methods so you may get the experience which may bring you big pay. Capable instructors supervise your studies and actual practice. Course includes acetylene welding, spray painting, use of hand and power tools, etc.

THOROUGH, RELIABLE TRAINING

U. E. I. has trained men for new opportunity fields since 1927 and many students are now making good. Auto body and fender repairing is one of the best profit-makers in any garage or service station. Little capital required. . . . placement service, or we will show you how to start your own shop. Get the facts FREE, without obligation. Write today.

Training approved under G. I. Bill

UTILITIES ENGINEERING INSTITUTE

AUTO-CRAFTS DIVISION
2523 Sheffield Ave., Dept. X-1AF, Chicago 14, Ill.

Gentlemen: —YES! I want to get into profitable Auto Body and Fender Repair Work. Please send me FREE FACTS at once.

Name _____ *Age* _____

Address _____

City _____ *Zone or County* _____ *State* _____

☐ Check here for Special Information if under 17.

WHICH OF THESE *Opportunities* INTERESTS *You* MOST?

Accounting
Air Conditioning
Architecture & Building
Automotive Engineering
Aviation—Practical
Aviation Drafting & Design
Better Foremanship
Bookkeeping
Business Management
Contracting
Diesel Engineering
Drafting & Design
Electrical Engineering
Electricity—Practical
Electronics, Industrial
High School Courses
Machine Shop Operations
Mechanical Engineering
Plastics Engineering
Plumbing—Practical
Private Secretary
Radio Operating & Servicing
Railway Training
Refrigeration
Sheet Metal Pattern Drafting
Shop Management
Tool Making

THINK! LOOK FORWARD!

Business is making big, new plans
Men and Women are preparing for the future
WHAT ARE YOU DOING ABOUT *YOUR* TOMORROWS?

● *Today,* choose the job you want—and prepare for it. Or if you are already engaged in the work you like best, start training *now* for quicker promotion. Acquire the knowledge that will help you to get ahead faster, make more money and have greater security.

Invest part of your spare time in more rapid progress. Start training now, in spare time in your own home. Be ready to grasp your opportunity and step out ahead of those who lack the ability you have attained.

American School, founded in 1897 as an educational institution *not for profit,* can help you to reach your goal just as it has helped others during the past fifty-one years. Give serious thought to the list above. Pick one or more subjects that interest you. Then check the coupon at right, add your name and address and mail it at once. The school will send you details on its training plan and outline of study prepared by specialists. There is no charge, no obligation, so send the coupon immediately.

PRACTICAL, EFFECTIVE HOME-STUDY TRAINING SINCE 1897

Take This First Easy Step

CHECK, CLIP AND MAIL COUPON NOW

AMERICAN SCHOOL, Dept. G628, Drexel at 58th, Chicago 37, Ill.

Without obligation, Please send FREE and postpaid, bulletin and details of the Subjects checked.

- ☐ PLASTICS ENG'R
- ☐ Refrigeration
- ☐ Architecture and Building
- ☐ Contracting
- ☐ Practical Plumbing
- ☐ Automotive Engr.
- ☐ Aviation Drafting
- ☐ Aviation
- ☐ Business Mgnment
- ☐ Railway Training
- ☐ Accounting
- ☐ Electrical Engr.
- ☐ Electricity—Pract.
- ☐ Electronics, Industrial
- ☐ Bookkeeping
- ☐ Private Secretary
- ☐ Diesel Engineering
- ☐ Sheet Metal Pattern Drafting
- ☐ Drafting and Design for Men and Women
- ☐ Radio
- ☐ High School
- ☐ Air Conditioning
- ☐ Mechanical Eng.
- ☐ Shop Management
- ☐ Tool Making
- ☐ Better Foremanship
- ☐ Machine Shop Operations

Name..... *Occupation*.....

Address..... *Age*.....

City..... *State*.....

AMERICAN SCHOOL

Dept. G628, Drexel at 58th Street, Chicago 37

THE GREATEST THING IN PLASTICS!

A NEW HOME INDUSTRY & HOBBY

PLASTICS need no introduction . . . you can hardly walk into any store without being irresistibly lured into admiring or buying some new gadget or novelty made out of plastic! The amazing thing is that **YOU** can easily make beautiful and attractive novelties, jewelry, etc., at home without **ANY** tools, machinery or previous experience! Sounds incredible, but we **GUARANTEE** that casting with **OUR** liquid plastics is *as easy as pouring water out of a glass!* Let us prove it . . . let us send you an attractive novelty (worth 50c) made with one of our plastics together with our big catalog illustrating the many beautiful things you can easily make at home for your own pleasure or to sell to stores, friends and neighbors at a handsome profit! See free offer in this ad. Be the first in your locality to get started in this very fascinating and highly profitable business!

PLASTICAST is a transparent liquid plastic; can be poured into ANY kind of mold or container . . . no special molds required. Hardens in a few minutes into a transparent solid, clear-as-glass, tough-as-steel plastic! No tools or machinery required. Ideal for imbedding pretty flowers, butterflies, photographs, souvenirs, war medals, biological specimens and for making beautifully brilliant jewelry, gems, displays, lenses, knick-knacks and novelties. Easily cast into sheets, rods, blocks . . . **ANY** shape, **ANY** color. **EVERYTHING** furnished, including molds for making about **$100.00** worth of attractive novelties! Only **PLASTICAST OUTFITS** give you free valuable molds!

PLASTICAST OUTFIT, complete.....$3.50

PLASTIDUR . . . (LIQUID IVORY). Ideal for casting all OPAQUE articles. Hardens in a few minutes into a very strong **IVORY**-like plastic! May be dyed any color or cast into any shape. Works in **EVERY** type of mold! Non-inflammable, weatherproof, DURable. Ideal for statuary, novelties, figurines, toys, gadgets, tools, knobs . . . *a million useful applications!* **PLASTIDUR OUTFIT** comes complete with molds, dyes, accessories and full directions for making about **$100.00** worth of very attractive jewelry!

PLASTIDUR OUTFIT, complete.....$5.00

LIQUID MARBLE . . . castings made with our materials have all the fine appearance, hardness and gloss of genuine marble! Yet it is extremely easy to use; may be cast into any type of mold. Castings take a high polish. Imitate various rare marbles with assortment of pigments provided with outfit. Easy to make attractive salable articles of lasting beauty. Ideal for casting lamp bases, desk pen sets, book ends, vases, statues, etc. Molds, pigments, directions and all materials required to start immediate casting included in every outfit.

LIQUID MARBLE OUTFIT, complete.....$4.00

BIG MODELING OUTFIT . . . contains the most practical materials for making original models; **PLASTICLAY, IVORINE, PLASTISTONE, PLASTER, CARVING-STONE, PLASTIGLAZE, 3 MODELING TOOLS** and **1 ENGRAVING TOOL.** A liberal supply of all these materials and directions for use for model making, casting or mold making. Actual catalog value over $5.00.

MODELING OUTFIT, as described.....$4.00

THE TECHNIQUE OF CASTING . . . the **ONLY** book of its kind in print! The author's years of valuable experience with **EVERY** type of casting and mold material described in simple detail fully illustrated. Over 150 detailed sections dealing with liquid plastics, plaster, wax, clay and stones, synthetic resins, ceramics, liquid glass and every known material for casting and mold making. Also contains valuable formulas for making your own products! *Almost 100 pages of valuable information nowhere else available.*

THE TECHNIQUE OF CASTING.....$2.00

TERMS: We pay the postage (U.S.A. and Canada only) if full cash accompaines order. C.O.D. accepted (U.S.A. only) if $1.00 deposit included for each item ordered. C.O.D. orders not postpaid.

FREE A very attractive and useful novelty made of one of our products given absolutely free with every one of our catalogs! Catalog lists many new materials for making **MOLDS** and **CASTINGS** with Liquid Plastics, Liquid Ivory, Liquid Marble, Wax, Latex, Metal, Castwood, Plaster, etc.; also many molds listed. Price of catalog only 10c coin or stamps.

PLASTICAST CO., (Dept. H)

5961 Madison St. Chicago 44, Ill. — *WE HAVE NO RETAIL STORE— ORDER BY MAIL ONLY* — **P.O. Box 987 Palo Alto, Calif.**

★ WRIST WATCH
★ STOP WATCH
★ TELEMETER
★ TACHOMETER

Phenomenal Value!

17 JEWEL • 2 PUSH BUTTON

CHRONOGRAPH

ONLY **$29.75** PLUS 10% TAX

INCABLOC SHOCK RESISTANT FEATURE
- Sweep Second Hand
- Radium Dial • Anti-Magnetic • Unbreakable Crystal. (formerly $71.50)

IDEAL FOR
- Physicians • Engineers
- Radio Men • Sportsmen
- Photographers • Aviators

OUR GUARANTEE
MONEY BACK IN 10 DAYS
If not satisfied for any reason

ADLEW JEWELERS *Dept.* K-7
117 W. 42nd St., N. Y. C. 18
Mail Orders Promptly Filled • Shipped C.O.D. or send check or money order.
Address mail-orders to ADLEW JEWELERS 152 W. 42nd St., N. Y. 18, Dept. K-7.

Also available in 10-K Gold Case. $44.50 (plus 10% tax), formerly $125. Watch enlarged to show detail.

SHINE WITHOUT 'POLISH'

New Invention! • Sells Like Wild

Replaces messy pastes, liquids. Simply glide over shoes—and PRESTO! —you have a lustrous, long-lasting shine. No mess. No muss. No soiled hands. Clean. Handy. WORKS LIKE MAGIC! For Men's, Women's and Children's Shoes. Low priced. Lightning seller!

SAMPLES FOR AGENTS Sample offer sent immediately to all who send name at once. A penny postal will do. SEND NO MONEY—just your name. KRISTEE CO., 762 Bar Street, AKRON, OHIO

STAMMER?

This new 128-page book, "Stammering, Its Cause and Correction," describes the Bogue Unit Method for scientific correction of stammering and stuttering—successful for 47 years. *Free—no obligation.*

GET THIS FREE BOOK

Benjamin N. Bogue, Dept. 4815, Circle Tower, Indianapolis 4, Ind.

STUDY **ENGINEERING** AT HOME

With An Educational Institution

Courses in ENGINEERING: Electrical, Civil, Mechanical, Drafting, Architectural, Automotive, Steam, Diesel, Aeronautical, Radio, Structural, Mining, Industrial, Petroleum, Marine, Refrigeration, Air Conditioning, Chemical.
Courses in ARTS AND SCIENCES: Philosophy; Education; Letters; Public Health; Medical Jurisprudence; Psychology; Sociology; Physics; Chemistry; Geology; Pol. Science; Theology; Law; Business and Commerce; Accounting; Mathematics; Statistics; Agriculture.

McKinley-Roosevelt Incorporated, 4610-DC, Sheridan Rd., Chicago 40, Illinois

LEARN ELECTRIC MOTOR REPAIR AT HOME . . . IN SPARE TIME

Train for good pay in an uncrowded field

Based on this big 560-page ELECTRIC MOTOR REPAIR book you can train quickly for fast, profitable repair, installation and maintenance on practically any electric motor. Explains motor trouble diagnosing, repair and rewinding. Covers A-C and D-C motors, synchronous motors and generators, etc. and motor control systems. Quick guides show how to handle specific jobs. Over 900 special pictures and diagrams make study easy.

SPECIALIZE IN "SOMETHING" DIFFERENT! Send $5 ($5.50 foreign) cash or M. O. for ELECTRIC MOTOR REPAIR, or we will ship C.O.D. (in U.S.A. only) and you can pay postman when book arrives. IF NOT MORE THAN SATISFIED, return book within 5 days and your $5 will be refunded promptly. YOU CANNOT LOSE!

Only $5 for the complete training

Dep't. MI-98, MURRAY HILL BOOKS, Inc. 232 MADISON AVE., NEW YORK 16, N. Y.

MAIL THIS *Opportunity* COUPON TODAY!

SEND FOR THIS 30 PAGE *FREE* BOOK

RADIO TRAINING ASSOC. OF AMERICA, DEPT. MI
5620 Hollywood Boulevard., Hollywood 28, Calif.

Send free illustrated book showing how I can make good in Radio and Television, through training direct from Hollywood.

Name_____ Age_____

Address_____

City_____

Zone_____ State_____

LEARN HOW YOU CAN MAKE GOOD IN

RADIO

TELEVISION-ELECTRONICS

through practical HOME-STUDY plus

10 BIG KITS of RADIO PARTS R. T. A. GIVES YOU!

YOU WILL DO SCORES OF PRACTICAL JOBS AND EXPERIMENTS

JUST A FEW OF THE JOBS YOU'LL DO . . .

With RTA's 10 BIG KITS you'll build a TRF Receiver, High-Frequency Converter, Complete 6 Tube AC-DC Superheterodyne plus more than a hundred other valuable and practical experiments. Thus RTA methods give you BALANCED TRAINING — Theory PLUS Real Shop Experience, right in your own home.

25 Years of Home Training Experience
Select your school carefully. Select a school like RTA with more than a quarter century of practical experience in the home-training field...a school that is right "on-the-spot" in Hollywood, where newest technical improvements are introduced!

EARN EXTRA MONEY *while learning* AT HOME

Under RTA's easy, practical home-training plan, you study in SPARE TIME ONLY and RTA's Hollywood Experts show you how to earn WELCOME EXTRA CASH, even while learning! In fact, like many RTA students—you may actually get MORE SPARE TIME WORK than you can handle.

MASTER HOLLYWOOD TECHNICIANS *Guide You*

Direct from Hollywood, the very heart of America's Broadcasting, Television, Radio and Sound industries, RTA brings you practical "Time-Tested" Home Training. Because RTA is so favorably located in Hollywood, it is in an excellent position to bring you ACTUAL METHODS developed by the Radio-Television industry, leading to real money-making opportunities!

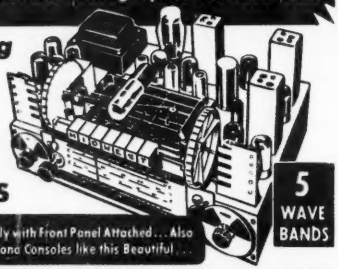
400 MILLION RADIO *and* TELEVISION SETS

will be built in the next 10 years. 72 million dollars is being spent RIGHT NOW for radio repairs ALONE! When you are thoroughly trained you can imagine what opportunities await you in Your Own Radio Sales & Service Business, Television, FM, Manufacturing, etc.

RADIO TRAINING ASSOCIATION OF AMERICA 5620 HOLLYWOOD BLVD. HOLLYWOOD 28, CALIF.

LOW FACTORY PRICES
on the Sensational NEW 1949
MIDWEST RADIOS
With Exclusive FLASH-O-MATIC Volume and Band Indication, TELEVISION Audio Switch-Over, and NEW COLOR-RAY Tuning—plus No-Drift FM.

Featuring THIS POWERFUL SERIES 16 AM-FM CHASSIS



5 WAVE BANDS

Available Separately with Front Panel Attached... Also Complete Radio-Phono Consoles like this Beautiful...

SYMPHONY GRAND
AM-FM RADIO-PHONOGRAPH

A magnificent musical instrument and a masterpiece of cabinet design. Offers world-ranging radio reception and newest automatic Intermix Record Changing Phonograph. Uses powerful Series 16 AM-FM Radio Chassis. Giant 14½" Panasonic Speaker; Tri-Magnadyne Coil System; Built-In Loop Antenna. Other luxurious console and table model cabinets with Series 16, 12 & 8 Radio Chassis.

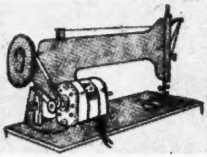
SEND FOR FREE CATALOG

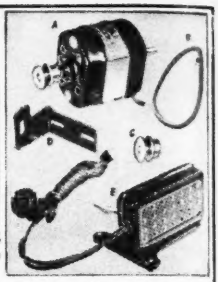
30 DAYS TRIAL...EASY TERMS
FILL IN COUPON AND MAIL TODAY OR JUST SEND NAME AND ADDRESS ON 1c POSTCARD

MIDWEST RADIO & TELEVISION CORP.
Dept. 411, 909 Broadway, Cincinnati 2, Ohio
Please send me your new FREE 1949 Catalog.

NAME
ADDRESS
CITY ZONE STATE

HIGHBRIDGE'S SPECIAL
this month ONLY





ELECTRIFY your MOTHER'S or WIFE'S Sewing Machine with our complete KIT.

COMPLETE with SEWING-LIGHT (NOT SHOWN) $15.95

KIT: Consists of: AC or DC—115 volt—60 cycle motor, FOOT control Rheostat, bracket, belt, pulley, screw for mounting and instructions, plus: FREE SEWING LIGHT.

CAN also be used for Flexible shaft attachments such as grinding, polishing, etc.

DEALERS' inquiries invited.

HIGHBRIDGE R. T. & A. Ser. Co.
343 Canal St. Dept. MI New York 13, N. Y.

MONEY for MEN ALL DATA FREE

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock, Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. 1qc material makes regular 10c store sellers. Rubber molds furnished for speed production. Small investment brings good returns. We are now placing big chain store orders with manufacturers. Ambitious men have chance for real prosperity. Our free booklet will interest and benefit you.

PLASTEX INDUSTRIES, DEPT. 3
3400 THIRD AVE., NEW YORK 56, N. Y.

LAW

STUDY AT HOME for PERSONAL SUCCESS and LARGER EARNINGS. 39 years expert instruction—over 114,000 students enrolled. LL.B. Degree awarded. All text material furnished. Easy payment plan. Send for FREE BOOK — "Law and Executive Guidance," NOW!

AMERICAN EXTENSION SCHOOL OF LAW
Dept. 93-X, 646 N. Michigan Ave., Chicago 11, Ill.

Learn Profitable Profession in 90 days at Home

MEN AND WOMEN, 18 TO 50

Many Swedish Massage graduates make $50, $75 or even more per week. Large full time incomes from doctors, hospitals, sanatoriums, clubs or private practice. Others make good money in spare time. You can win independence and prepare for future security by training at home and qualifying for Diploma. Anatomy Charts and 32-page Illustrated Book FREE—Now!
THE COLLEGE OF SWEDISH MASSAGE
Dept. 858L, 100 E. Ohio St., Chicago 11

FREE BOOK TELLS HOW YOU CAN LEARN TO MOUNT BIRDS and ANIMALS

BE A TAXIDERMIST—Learn by Mail

Easy home lessons teach you quickly how to MOUNT BIRDS, ANIMALS, GAME-HEADS, FISH—to TAN LEATHER, FURS. Save your hunting trophies. Have a home museum. It's thrilling! Taxidermy is wonderful, FUN, A PLEASURE HOBBY AND A MONEY MAKER:—Investigate! Get this strange FREE BOOK.

Game is growing scarcer—every specimen valuable!

EXTRA MONEY: —Earn in your spare time. Sell your mounts; and do work for other sportsmen. Students report $30 to $75 and more per month. Big demand. Fine prices. If you want REAL PROFIT from spare time WRITE TODAY.

FREE BOOK —with 100 photos of wild game. Tells about Taxidermy and how YOU can learn, easily, quickly. Old reliable school. 275,000 students. — — STOP this minute and TEAR OUT THIS AD NOW as a reminder; then write; get the free book. You will be delighted, AMAZED. RUSH postal or letter and learn how to have more FUN, FASCINATION, PROFIT. State your AGE.
Northwestern School of Taxidermy. Dept. 2409, Omaha, Neb.

Opportunities in ELECTRICITY

TRAINED MEN NEEDED NOW IN
WIRING – homes, factories, farm buildings, etc.
REPAIRING – appliances, motors, generators, etc.
WINDING armatures, stators, etc.

START NOW to prepare for the *big pay opportunities* in these and other branches of electricity. Get thorough, practical training from E-I Electrical School – without wasting time on unrelated subjects. DIFFERENT, modern methods make your E-I course easy and fast. FREE book tells how you may EARN WHILE YOU LEARN! Mail coupon TODAY.

E-I Electrical School (Founded 1935) Dept. 98-1, Hinsdale, Ill.
Send Free Book and Complete course outline for ( ) E-I Home Shop Training. ( ) E-I Combination Home Shop and School Shop training.

Name_____ Age_____
Address_____
City_____ State_____ County_____

Now ANY AUTO REPAIR JOB Can Be "Duck Soup" For You!

MoToR's New AUTO REPAIR MANUAL Shows You How to Service and Repair ANY Part of ANY Car!

FREE 7-DAY OFFER!

NOW you can "polish off" the HARDEST jobs the EASIEST way! MoToR's AUTO REPAIR MANUAL is ready to show you how to repair anything from carburetor to rear end—with the *least* possible amount of time and effort!

Suppose plain-talking car engineers from every auto plant in America got together and showed you all the things you needed to know about repairing and servicing the cars *they* had designed and manufactured! That's really what you get in this big manual! Right at your fingertips, the main "dope" from over *150 Official Factory Shop Manuals*, covering every make car built since 1935!

Easy to use, too! Quick-index leads you to right page in jiffy! Just follow simple instructions step-by-step.

SEE HOW MUCH YOU GET!

Over 700 pages, 8½x11 inches, bound in sturdy covers. 200,000 service, repair, adjustment, replacement, tune-up facts on all makes and models, built from 1935 to 1948! More than 1700 cut-away photos, diagrams, drawings show you exactly WHAT to do and HOW to do it. Used by U. S. Army, trade and technical schools everywhere, thousands of auto servicemen.

Now YOU — without cost —can see for yourself what a wonderbook MoToR's Auto Repair Manual really is. Try it—FREE—for 7 days! Learn first-hand how it can pay for itself the first few times you use it.

SEND NO MONEY
7-Day Free Examination

Just mail coupon at right, without money! When the postman brings your book, pay him nothing. First make it show you what it's got! Unless you agree this is the greatest time-saver and work-saver you've ever seen—return book in 7 days and pay nothing. Mail coupon today! Address: MoToR Book Dept., Desk 3K, 572 Madison Ave., New York 22, N. Y.

Published by MoToR, The Leading Automotive Business Magazine. MoToR's manuals assure high standards of repair work.

Same FREE 7-Day Offer Applies on MoToR's TRUCK REPAIR MANUAL

For mechanics, truck specialists, service stations, fleet owners. Covers EVERY job on EVERY truck made since 1936! 1400 pictures, 952 pages, 300,000 facts. Used by Armed Forces.

All types Gasoline Engines, Diesels, Hesselman. **Fuel Systems, Governors, Lubrication Systems, Ignition Systems, Starters, Generators, Clutches, Transmissions, Axles, Torque Dividers, Transfer Cases, Brakes, Steering,** etc.

ALSO SERVICES buses, farm and industrial tractors, contractor and road building equipment, stationary power machinery, etc. (on all parts described in Manual.) Check box in coupon at right.

Covers All These Makes! USED BY U. S. ARMY

American Bantam, Auburn, Austin, Buick, Cadillac, Chevrolet, Chrysler, Cord, Crosley, De Soto, Dodge, Ford, Frazer, Graham, Hudson, Hupmobile, Kaiser, Lafayette, La Salle, Lincoln, Lincoln Zephyr, Mercury, Nash, Oldsmobile, Packard, Pierce Arrow, Plymouth, Pontiac, Reo, Studebaker, Terraplane, Willys

Clear, Pictured Facts on Every Job on Every Car Built Since 1935!

Nearly 200,000 service and repair facts on all 32 makes. Over 700 big pages; including 70 pages of carburetor text, charts, illustrations, covering all models. Over 200 charts, tables; Tune-up Chart; Valve Measurements; Compression Pressure; Torque Wrench Reading; Starting Motor; Engine Clearances; Generator; Body Service; Dash Gauges; Brake Specifications; Front End Measurements, etc., Engines; Electric, Fuel, Cooling, Lubricating Systems; Transmissions; Universals; Front Ends; Wheels; Rear Ends, etc.

MAIL COUPON NOW FOR 7-DAY FREE TRIAL

MoToR Book Dept., Desk 3K, 572 Madison Ave., New York 22, N.Y.
Rush to me at once: (check box opposite book you want)

☐ **MoToR's AUTO REPAIR MANUAL.** If O.K., I will remit $1 in 7 days, (plus 35c delivery charge), then $2 monthly for 2 months, with a final payment of 95c one month later. Otherwise I will return book postpaid in 7 days. **(Foreign price, remit $8 cash with order).**

☐ **MoToR's TRUCK REPAIR MANUAL.** (Described at left.) If O.K., I will remit $2 in 7 days, and $2 monthly for 3 months, plus 35c delivery charges with final payment. Otherwise I will return book postpaid in 7 days. **(Foreign price, remit $10 cash with order).**

Print Name _____ Age _____

Print Address _____

City _____ Zone No. (if any) _____

State _____ Occupation _____

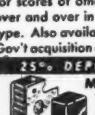
☐ **Check box and SAVE 35c delivery charge** by enclosing WITH COUPON entire payment of $5.95 for Auto Repair Manual (or $8.00 for Truck Repair Manual). Same 7-day return refund privilege applies.

WAR SURPLUS AND OTHER BARGAINS

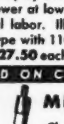
RETRACTING ACTUATOR UNIT

Mf'd. to actuate Flying Fort bomb bay doors. 40 to 1 Gear Ratio. Shaft RPM: 95. 24 Volts D.C. Reversible Motor. Lifts heavy loads, depending on size of pulley. 4¾" diameter mounting flange. In great demand for powering farm hoists, heavy garage doors, turntables, directional antenna systems, motion advertising display units, hauling fish nets and for scores of other uses requiring power at low speed. Pays for itself over and over in saving hard manual labor. Illustration shows offset type. Also available in straight line type with 110 Shaft RPM. Original Gov't acquisition cost $300. All new **$27.50** each. Shipping Wgt. 20 lbs.

25% DEPOSIT REQUIRED ON C.O.D. ORDERS



MICROSWITCH: Type Z - 2"x1"x ⅞". Used open or closed. For automatic contacting-light, sound, model train systems, chimes, etc. New.....3 for **$1.** Aluminum Spring Actuator to fit above Microswitch.....3 for **$1.**



MICROMETER

Chrome plated, precision engineered and carefully tooled to give long life . . .

all new. 0-1" capacity, **$2.25.** 1-2" capacity, **$3.50** Each.

SEND CHECK MONEY ORDER or CASH

TRANSFORMER: Jefferson Electric step up or step down transformer. Input, primary 110-117 Volts A.C. Output, from 5 Volts to 650 Volts. Suitable for use with war surplus gadgets, heater relays, radio test filaments, electric trains, house chimes, etc. Weight 10 Lbs. New. **$7.95** Each.

ALL PRICES F.O.B. CULVER CITY, CALIF.

WILLARD WET PLATE BATTERY

This extra long life rechargeable battery is ideal for portable radios, mobile units, bell circuits, alarm systems, rural telephones, Strobo bulbs, etc. 2 V 20 Amps. Only 5" high. Visible ball float hydrometer built in Lucite case. Shipped dry. Any battery service will supply standard battery electrolyte. Used singly or in multiples. Shipping Wgt. 3½ Lbs. ..... All new. **$2.75** each

AIRBORNE SALES CO., INC. DEPT. MI-9-8 CULVER CITY CALIF.

New ARMY MINE DETECTOR

AN/PRS-1 is a portable device for detecting Metallic and Non-metallic objects. You can use them to ferret out all kinds of Buried-Treasures, in the Mountains or on the Beaches. Its private use suggests the following: In the hills or mountains, all types of Metals and Non-metals; on the beaches any type of objects such as jewelry and coins. For commercial use such as tracing buried cable, wire and sewer tile. Locating buried metal or wooden boundary stakes, etc.

TECHNICAL FEATURES:

This unit actually is a Ultra high Frequency transmitter. A variation in radiance resistance, caused by any change in soil density, shows in a deflection of the Microammeter, discriminating between Metallic or Non-metallic objects by a swing to the right or left. Audio response in the Headset also indicates changes by an increase or decrease in the volume of the 1000 cycle tone. By lengthening dipole rods operator will be able to increase the depth sensitivity.

This unit comes complete with spare tubes, antenna dipole and reflector, and instructions manual, in wooden chest 9½" height x 28¼" length x 15½" depth. Weight in operation is only 22 lbs. LESS Batteries. Power supply: Three 45 volt and one 6 volt batteries. Uses standard batteries. Original COST $285.00. Shipping Weight appr. 80 lbs. F. O. B., N. Y.

Our Special Price **$26.40** with battery
$17.50 without battery

Send Orders to: **COLUMBO TRADING CO., INC.**
304 Canal St., Dept. MI, N. Y. 13, N. Y.

ACCOUNTANT

BECOME AN EXPERT

Executive Accountants and C. P. A's earn $3,000 to $10,000 a year. Thousands of firms need them. We train you thoroly at home in spare time for C. P. A's examinations or executive accounting positions. Previous experience unnecessary. Personal training under supervision of staff of C. P. A's. Placement counsel and help. Write for free book, "Accountancy, the Profession That Pays."

LASALLE Extension University, 417 So. Dearborn St.
A Correspondence Institution Dept. 9493-H, Chicago 5, Ill.

SEND FOR THIS FREE!

Make money. Know how to break and train horses. *Write today for this book FREE*, together with special offer of a course in Animal Breeding. If you are interested in Galting and Riding the saddle horse, check here ( ) *Do it today—now.*

BEERY SCHOOL OF HORSEMANSHIP
Dept. 1159-D Pleasant Hill, Ohio

WANT A U·S·GOVERNMENT JOB ?

START
As High As $3,021 Year

Men—Women Get Ready Immediately
Thousands Appointments To Be Made
Veterans Get Preference
Mail Coupon Today Sure

COUPON

FRANKLIN INSTITUTE
Dept. E78, Rochester 4, N. Y.
(Not Government Controlled)

Sirs: Rush to me without charge (1) 40-page book with list of many U. S. Government Big Pay Dependable Jobs. (2) Tell me how to get one of these jobs.

Name .....
Address..... *Vet?*...

WATCHMAKING

Be a Watchmaker—Be Independent
Day and Evening Classes
Approved for Veterans
Write today for Free Information

CHICAGO INSTITUTE OF WATCHMAKING
7 So. Pulaski Road, Dept. MI-9, Chicago, Illinois

FREE Sample Of New PLASTIC Shows How To Make Leather and Leatherette LIKE NEW!

MAGICALLY CHANGES CLOTH TO IMITATION LEATHER

SAVE MONEY - TIME AND EFFORT by renewing Luggage—Leather Covered Furniture—Golf Bags—Auto Seat Covers—Restaurant Furniture, Booths or any Leather or Leatherette item with new plastic discovery called Leather-New. Coat cloth or cloth covered items such as Glider Cushions, Tarpaulins, Porch Furniture, Etc. and make them look and wear like they were leather. Spreads easily with brush or spray gun—leaves NO BRUSH MARKS. Simple Acids, Caustics and Alcohols do not stain this finish—It is sun and mildew proof. Stays Fresh and Clean as long as real leather. Comes in all standard colors. Just mail coupon for Free sample of Leather-New coated material which shows effects.

LEATHER-NEW PRODUCTS, 4723 Troost, Dept. M4, Kansas City, Mo.

OWN A PROFITABLE LIFETIME BUSINESS

Cash in on big profits to be made in this new business—Profits up to $700.00 monthly possible, renewing booths and furniture for bars, restaurants, grills, movie houses, etc. Mail name and address on 1c postcard—I'll show you how. **Jack Edwards, Sales Mgr.**

JUST MAIL COUPON
No Obligation

Leather-New Products,
4723 Troost, Dept. M4, Kansas City, Mo.

Name .....
Address .....
City..... State.....
Fill Out—Mail Today

What's ahead ?

A world of rapid changes and new economic problems, that's certain. Just as surely, however, there's *one* thing that will be unchanged. In the near future and the long future, the important positions will be held by *trained men*.

You want security for your family . . . freedom from financial worry . . . your own home . . . perhaps your own business. The surest route to them is specialized *training* that pays out in promotions and increased income.

Thousands of I. C. S. graduates have proved the truth of this. In a single 30-day period, these famous Schools have received as many as 635 student letters reporting advancements in salary and position. In a period of 120 days, we've recorded 1,920 such reports.

The few dollars these men and women paid for I. C. S. *training* have proved to be the best investments of their lives. *You* have the same opportunity. Act *now* to prepare for the future. Mail the coupon for full information on practical, authoritative *training* in any one of more than 400 business and technical subjects.

INTERNATIONAL CORRESPONDENCE SCHOOLS

ICS

BOX 2324-S, SCRANTON 9, PENNA.

Without cost or obligation, please send me full particulars about the course BEFORE which I have marked X:

Air Conditioning and Plumbing Courses
- ☐ Air Conditioning
- ☐ Heating ☐ Plumbing
- ☐ Refrigeration ☐ Steam Fitting

Chemistry Courses
- ☐ Chemical Engineering
- ☐ Chemistry, Analytical
- ☐ Chemistry, Industrial
- ☐ Chemistry, Mfg. Iron & Steel
- ☐ Petroleum Refining ☐ Plastics
- ☐ Pulp and Paper Making

Civil Engineering, Architectural and Mining Courses
- ☐ Architecture
- ☐ Architectural Drafting
- ☐ Bridge and Building Foreman
- ☐ Building Estimating
- ☐ Civil Engineering
- ☐ Coal Mining
- ☐ Contracting and Building
- ☐ Highway Engineering
- ☐ Lumber Dealer
- ☐ Reading Structural Blueprints
- ☐ Sanitary Engineering
- ☐ Structural Drafting
- ☐ Structural Engineering
- ☐ Surveying and Mapping

Communications Courses
- ☐ Electronics
- ☐ Practical Telephony
- ☐ Radio, General
- ☐ Radio Operating
- ☐ Radio Servicing
- ☐ Telegraph Engineering

Electrical Courses
- ☐ Electrical Drafting
- ☐ Electrical Engineering
- ☐ Electric Light and Power
- ☐ Lighting Technician
- ☐ Practical Electrician

Internal Combustion Engines Courses
- ☐ Auto Technician ☐ Aviation
- ☐ Diesel-Electric
- ☐ Diesel Engines ☐ Gas Engines

Mechanical Courses
- ☐ Aeronautical Engineer's, Jr.
- ☐ Aircraft Drafting ☐ Flight Engineer
- ☐ Forging ☐ Foundry Work
- ☐ Heat Treatment of Metals
- ☐ Industrial Engineering
- ☐ Industrial Metallurgy
- ☐ Machine Shop
- ☐ Mechanical Drafting
- ☐ Mechanical Engineering
- ☐ Mold-Loft Work
- ☐ Patternmaking—Wood, Metal
- ☐ Reading Shop Blueprints
- ☐ Sheet-Metal Drafting
- ☐ Sheet-Metal Worker
- ☐ Ship Drafting ☐ Ship Fitting
- ☐ Tool Designing ☐ Toolmaking
- ☐ Welding Engineering
- ☐ Welding—Gas and Electric

Railroad Courses
- ☐ Air Brake ☐ Car Inspector
- ☐ Diesel Locomotive
- ☐ Locomotive Engineer
- ☐ Locomotive Fireman
- ☐ Locomotive Machinist
- ☐ Railroad Section Foreman

Steam Engineering Courses
- ☐ Boilermaking
- ☐ Combustion Engineering
- ☐ Engine Running
- ☐ Marine Engineering
- ☐ Steam Electric ☐ Steam Engr.

Textile Courses
- ☐ Cotton Manufacturing
- ☐ Loom Fixing ☐ Rayon Weaving
- ☐ Textile Designing
- ☐ Woolen Manufacturing

Business and Academic Courses
- ☐ Accounting ☐ Advertising
- ☐ Bookkeeping
- ☐ Business Administration
- ☐ Business Correspondence
- ☐ Certified Public Accounting
- ☐ Commercial ☐ Commercial Art
- ☐ Cost Accounting
- ☐ Federal Tax ☐ First Year College
- ☐ Foremanship ☐ French
- ☐ Good English ☐ High School
- ☐ Higher Mathematics
- ☐ Motor Traffic ☐ Postal Civil Service
- ☐ Retailing
- ☐ Retail Store Management
- ☐ Salesmanship ☐ Secretarial
- ☐ Sign Lettering
- ☐ Spanish ☐ Stenography
- ☐ Traffic Management

Name_____ Age_____ Home Address_____

City_____ State_____ Working Hours_____ A.M. to_____ P.M.

Present Position_____ Employed by_____

Special tuition rates to members of the Armed Forces. Enrollment under G.I. Bill and P.L. 16 approved for World War II Veterans.
Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada.

YOUR INVENTION CLINIC

Conducted by Joseph H. Kraus

To facilitate the answering of their mail, readers desiring the advice of Mr. Kraus on inventions matters are requested to observe the following simple rules: 1) Type or write clearly, on one side of the paper. 2) Make sure that your full name and address, including street number and postal zone, if any, are on the letter and all accompanying papers. 3) Mail drawings or photographs flat, not rolled, and include postage if you want them returned. 5) Do not ask questions relating to patent laws. 6) Do NOT send models.

Address your inquiries to "Your Invention Clinic," MECHANIX ILLUSTRATED, 67 West 44th Street, New York 18, N. Y. Mr. Kraus will answer as many letters as possible in this column. His services are free.

Fender Guard and Hubcap Puller

Edward W. Wagner of Cleveland, Ohio, sends us photos of a fender guard for a filling station and of a hubcap puller. He wants to know what we think of these two inventions. He has applied for patents on them.

ANSWER: In our opinion both your fender guard and your hubcap puller are practical. The fender guard is easy to make and could be turned out by the thousands with inexpensive machinery. We'll bet every motorist stopping at a filling station will appreciate such a guard and that every station in the country will be in the market for this item.

The cap puller also is good but it does nothing that you can't do with a screwdriver. Your puller, too, probably will get just as rough treatment as the screwdriver in prying off a cap. But the tool should sell. It has a specific purpose and any new-car owner should be glad to have a handy gadget for easing off those nice, shiny hubcaps. After both the car and the caps get beaten up a bit, though, the owner won't be quite so interested in a special tool for handling his battered hubcaps.

We suggest you try to market both these items, particularly the fender guard. Be prepared to modify it in line with the new design trends in cars. When you're all set to produce the fender guard in quantity, be sure to play up the unit with attractive advertising.

Stereoscopic Movies

Branson Satterthwaite of Everett, Pennsylvania, has an idea for projecting stereoscopic movies. He asks where he might test out his scheme, which would modify the film's speed of projection. He also wonders whether he can get patents on stereoscopic picture apparatus.

ANSWER: It's not likely that any projection studio or movie producer will let you experiment with a projector and change its projection speed. Since the sound films that most modern projectors use must go through the machine at a very precise speed, no professional film man is going to be eager to have you tinkering with that special rate of projection.

For a modest price, though, you could buy a second-hand projector of standard size, and do what you want with it. Or, buy yourself a 16-millimeter projector and change the speed by varying the motor current's control resistor. If you don't want to buy a 16-millimeter projector, you can rent one for a few dollars. Anything you might work out on a 16-millimeter machine with your stereoscopic idea you could also do with a 35-millimeter setup.

But don't kid yourself. Don't mistake pseudo-stereoscopism for the real thing. No picture taken from a single-eye position can be truly stereoscopic. Dozens of actual stereoscopic movies already have been shown. But, though differing in details and design, all these stereoscopics used or combined more than one eye position.

Yes, you can get patents on taking, projecting and even viewing stereoscopic pictures—if you have some original ideas. There are lots of patents, though, on all phases of this subject. Better study the problem more thoroughly. Film and lens experts have been trying to develop good stereoscopic movies almost since the birth of the motion picture industry. So far, nobody has come up with the right answer. One of these days, however, *somebody* may stump the experts by working out a fairly simple solution. Keep trying—it could be you!

Robot for Model Plane

Edward C. Dyer of Detroit has a patent pending on a robot device for model planes. With his invention, he says, a model aircraft (gasoline-powered, Classes B and C) can be set before takeoff to fly through a series of maneuvers. He wants us to comment.

[*Continued on page* 32]

INVENTORS

A Patent is a Valuable Right. On the basis of a provision in the Constitution of the United States, Congress has established a system under which inventors may secure the exclusive right to prevent the unauthorized use, manufacture and sale of their inventions for periods of seventeen years. The inventor secures this protection for his invention by obtaining a United States Patent.

This firm is registered to practice before the U. S. Patent Office and is available to assist inventors in the preparation and prosecution of their cases. Detailed information and the steps to be taken in obtaining patent protection will be furnished upon request.

Form below for mailing convenience

VICTOR J. EVANS & CO. *Merlin M. Evans* REGISTERED PATENT ATTORNEY

350-K MERLIN BUILDING, WASHINGTON 6, D. C.

Please send me without obligation a copy of your booklet "Patent Protection For Inventors" together with your convenient "Evidence of Invention" form.

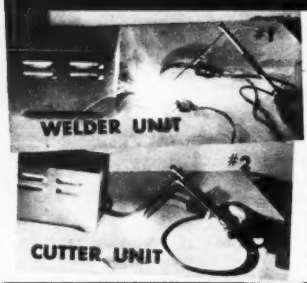
Name.....

Address.....

City and State.....

PATENTS . . . . . TRADEMARKS . . . . . COPYRIGHTS

Sensational New Electric ① WELDER ② CUTTER!



Uses 110-115 AC or DC • INSTRUCTIONS INCLUDED
WELD - BRAZE - CUT - MELT - SOLDER - HEAT TREAT

The WELDRITE combination–tested and proven by countless commercial and amateur users, is now offered direct to you at the amazingly low price of only $12.00. No Gas–No Gauges–No Spark Lighter needed. Always ready for immediate use–Just plug WELDRITE into 110-115 AC or DC outlet. Uses standard welding and brazing materials available at all welding supply stores. WELDRITE furnished complete with Converter Unit, #1 Single Holder with attached Alligator clip, for welding metal up to 3/16" thickness, using up to 1/32" rod, and #2 Double Holder with Copper Coated Dual Carbon Electrodes for Cutting, Brazing, Heat Treating, Soldering, etc. Starting welding materials and instructions included.

Ideal for home workshop. Invaluable for body and fender shops, garages, repair and machine shops, manufacturers, etc.

BOTH only $12
LOWEST PRICE IN HISTORY!

SEND NO MONEY! 5 DAY TRIAL OFFER Order your WELDRITE Electric WELDER-CUTTER C.O.D. today. Pay postman $12 plus postage charges (wt. 4 lbs.) or send $12 and we pay postage. Either way, if not satisfied, return WELDRITE in 5 days, and money will be refunded. WELDER HOOD–Approved lens found in hoods costing to $10–only $3.95
California orders please add 2½% sales tax.

CALIFORNIA TECHNICAL PRODUCTS CO.
448 So. Hill St., Los Angeles 13, Calif. Dept. C-9

AUTO BOOKS ON APPROVAL

SEND NO MONEY. Just mail the coupon for a complete set of 4 Big, Thick Auto Books. 20th Edition. Over 2700 Pages! Whether you are a mechanic or helper, expert or apprentice, auto owner or driver, take immediate advantage of this FREE EXAMINATION OFFER.

MAKE GOOD MONEY NOW
HOLD A PERMANENT JOB

America wants its automobiles kept in good repair. Men with "know how" are in demand, at big pay. These books will help you get and hold an important job, or give you a chance to go into business for yourself now or later. Any man who half tries to improve himself can learn auto servicing and repairing by this quick reference method. Use the JIFFY INDEX to find easily understood answer to any auto problem. These wonder books prepared by eleven of America's great automobile engineers. Many hundreds of valuable illustrations. Send the coupon TODAY.

CAN YOU FIX IT?
These wonder books tell step by step HOW to make difficult repairs and adjustments, how to keep a car at maximum efficiency, including latest improvements in car design and operation. Engine troubles and how to correct them well covered.

4 BIG, THICK VOLUMES
Over 2700 Pages, 2000 illustrations, wiring diagrams, etc., including Diesel engines. Beautiful modernistic, washable cloth binding.

{ A year's consulting privileges with our engineers now given with these books without extra charge. }

Vocational Publishers Since 1898

AMERICAN TECHNICAL SOCIETY, Dept. A6320
Drexel Ave. at 58th St., Chicago 37, Ill.

I would like to examine your 4-Volume Set of Auto Books. I will pay the delivery charges only, but if I choose I may return them express collect, if after 10 days' use I prefer to keep them. I will send you $2 and pay the balance at the rate of only $3 a month until $24.80 has been paid. Include consulting service as offered above.

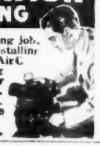
Name _____
Address _____
City _____ State _____

Please attach letter stating age, occupation, employer's name and address, and name and address of at least one business man as reference. Men in service, also please give home address.

Train for BIGGER PAY in REFRIGERATION AIR CONDITIONING

GET FREE BOOK!

Prepare yourself for a fine paying job. Trained men find opportunities installing and servicing Refrigeration and Air Conditioning. Get practical training in spare hours at home—plus four full weeks in the great ITI shops. Job Placement Help. FREE BOOK. Write Industrial Training Institute 2130 Lawrence Avenue Dept. J-3 Chicago 25, Ill.



CARTOON YOUR WAY TO SUCCESS!

DON'T COPY — LEARN TO ORIGINATE

RAYE BURNS will teach you HOW to CREATE ORIGINAL CARTOONS at home that you may SELL! Course contains 26 lessons and over 600 illustrations. All for *only* $2.85
Send name and address for free details.

RAYE BURNS SCHOOL, Dept. F, Box 3583, Cleveland, Ohio

Bar Bells

Buy Direct From Factory
Write for free booklet and price list

$8.95 up

INDEPENDENT IRON WORKS
2416 East 23rd Street, Dept. E
Los Angeles 11, Calif.

FIRST IN FUN FOR FAMILIES

ASSEMBLE THIS CLOCK for ONLY $3.95

IT'S FUN — IT'S EASY — IT'S INSTRUCTIVE
(A small screwdriver is the only tool required.)
Complete, Ready to Assemble—Accurate—Lasts for Years
Exquisite Design—Ebony Black Plastic Case

See what makes a clock "tick." See how smart you are mechanically by timing yourself as you assemble this beautiful, weight driven pendulum clock which you can't buy in finished form in stores for twice the price.

You save all assembly costs and you can sell to friends and neighbors to make extra cash.

WILCOX, INC., Dept. M-8, 971 Goodrich Blvd. Los Angeles 22, Calif.

New Easy Way TO MAKE **BIG MONEY!** AT HOME FULL OR SPARE TIME

Costs You Only 5¢-You Get $5.00

Now is the time to cash in on this big-paying easy-to-operate year round business, and *you need no experience!* Metallize Baby Shoes in real GOLD, SILVER, BRONZE, and PEARL. Everything furnished so YOU can start earning money in just *one week*–up to $1,000 per month full time or $50 to $75 per week spare time–at $5 per hour. They will last FOREVER, and there are 5 million eager customers every year, waiting to buy. *DETAILS FREE*–Send *no* money–a post card with your name will bring all the facts. Don't pass up this opportunity to start your own business on a shoestring–so ACT NOW Write *at once* to

- Big Income
- Huge Demand
- Sales Plans
- Future Security
- Your Own Boss
- Money Back Guarantee
- Most Successful Name in Metallizing

KIKTAVI COMPANY, Dept. M-3, 2111 West Manchester, Los Angeles 44, California

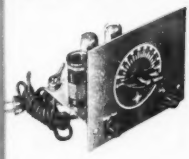
Write Now

FREE!
Course includes FREE—two actual metallized Baby Shoes guaranteed to be the most attractive on the market—or a pair of your own Baby Shoes metallized if you prefer.

LAFAYETTE CONCORD KIT-QUARTERS FOR RADIO BEGINNERS HAMS and PROFESSIONALS

AMERICA'S GREATEST RADIO VALUES

Easy 3 tube AC-DC Student's Kit

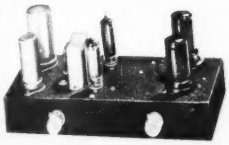


Get into fascinating educational radio with this easy-to-assemble kit. Contains all the parts needed to build complete radio. Full instructions. No special tools. Send for this bargain-buy now. Less tubes. *Only*..... **$5.95**

Exciting new 5 tube* AC-DC Kit

POPULAR SUPERHET . . . easy to assemble. Wonderful to listen to. All top features. Includes true tone reproduction, automatic volume control, streamlined airplane dial with wide tuning that covers 550 to 1600 Kc, built-in loop antenna, and a new Alnico V speaker. Handsome, modern plastic case and 5 tubes* (including rectifier) included at this low price. Kit contains all parts. Thrill to putting it together. Send for yours now while quantity lasts. *Only* **$13.75**

Build Your Own Hi-Fidelity Phono Amplifier



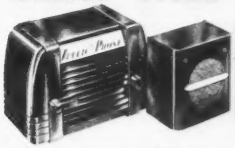
4 TUBE AC-DC KIT will bring you real high fidelity record enjoyment. Minimum of construction problems. Will provide long trouble-free operation. Quality of tone will amaze your friends. Built-in equalization network permits the use of a low gain pickup without the use of an additional preamplifier. Two twin triode 12SC7 tubes used as pre-amp and audio driver tubes. Pair of 50B5 beam power amplifiers in push-pull provide an audio output over 4 watts. Frequency response well over 12,000 cycles. Power supply consists of 2 selenium rectifiers in a voltage doubler circuit eliminating rectifier tubes. Order this fine kit—contains full instructions. *Great value at* **$13.95**

LAFAYETTE-CONCORD

100 SIXTH AVE., NEW YORK 13 — 229 W. MADISON ST., CHICAGO 6
265 PEACHTREE ST., ATLANTA 3 — 110 FEDERAL ST., BOSTON 10
24 CENTRAL AVE., NEWARK 2 — 542 E. FORDHAM RD., BRONX 58

SPECIAL INTERCOM VALUE

HOME • NURSERY • OFFICE
GARAGE • STORE • FACTORY



$12.95

A real 2-way system. Calls can originate at either station. Picks up your voice or a baby's whimper at 15'. Ready to operate, all you need is a screwdriver. Strong plastic cabinets. Saves time and effort. Ideal for nursery or general use in the home. Remote can be placed up to 2000' from master station. Eliminates needless climbing of stairs. Practical uses everywhere. Complete with 50' of wire. An unbeatable Lafayette value. Supply will be limited to readers of this magazine. So send coupon with order **$12.95**

BIG NEW 180 Page FREE CATALOG!

your copy is waiting . . . get it!

LAFAYETTE and CONCORD have combined to form the world's largest radio supply organization. Their new catalog — just off the press tells with terrific sock what this means to you. 180 pages jam packed with hundreds of thousands of items at absolute rock-bottom prices. Lists every part and kit you could possibly need for building television, home radio, ham, phonograph, high fidelity equipment, etc. *Make Lafayette your buying headquarters!* Half a million other radio men and hobbyists have done so! They don't miss up on these amazing values. Why should you? Shop in person at one of our outlets or order by mail—either way you'll save *big* money. Start now by rushing the coupon to us on a penny post card at once.

USE THIS COUPON NOW FOR FREE CATALOG AND ORDERING

LAFAYETTE-CONCORD, DEPT. TI-8
100 Sixth Ave., New York 13, *or*
901 W. Jackson Blvd., Chicago 7

MAIL NOW

☐ Please rush FREE catalog No. 89

☐ I enclose $..... Please fill attached order.

NAME.....

ADDRESS.....

CITY.....ZONE....STATE.....

INVENTORS

When you are satisfied that you have invented a matter of value—write me, without obligation, for full information as to what steps you should take to secure a Patent.

The usual first step is to have a search of the prior U. S. Patents conducted, so that I can report to you on the question of Patentability.

PATRICK D. BEAVERS
(Formerly RANDOLPH & BEAVERS)
Registered Patent Attorney
923 Columbian Building Washington 1, D. C.

PATRICK D. BEAVERS, *Registered Patent Atty.*
923 Columbian Bldg., Washington 1, D. C.

Please send me full information on how to secure Patent Protection and Trademark Registration.

Name .....

Street .....

City ..... State .....

PATENTS
AND TRADE MARKS
C. A. SNOW & CO.
REGISTERED PATENT ATTORNEYS
WRITE FOR INFORMATION TO
427 SNOW BUILDING, WASHINGTON 1, D. C.

INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

JOHN N. RANDOLPH
Registered Patent Attorney
209 Columbian Building Washington 1, D. C.

INVENTORS

IF YOU WISH TO PROTECT YOUR INVENTION
You should take steps to protect it by a U. S. Patent
WRITE ME FOR "RECORD OF INVENTION" FORM

CARL MILLER
REGISTERED PATENT ATTORNEY

WOOLWORTH BLDG., 35th Floor, Dept. 9BB, New York City
Please send me "Record of Invention" form.

NAME ----------

ADDRESS

Your Invention Clinic

[*Continued from page* 28]

ANSWER: You have developed a novelty which probably won't prove popular. We've never yet seen a control for a model ship or plane that works properly when you set special controls for a prearranged series of maneuvers.

For instance, suppose you set the little robot control for three figure-eight patterns before the wheels are lowered and the ignition cut for the plane to land. Sounds like a nice little automatic air show, doesn't it?

But winds, speed and inability to adjust the controls to meet all the varying conditions during the flight spoil the show. The plane can't stick to any regular compass course and finally flops down far from its pre-planned "landing field."

Tiny radio controls—small editions of the automatic devices that now can fly a big bomber without a man aboard—may be piloting model planes even before your patent is issued. Radio transmitters, complete with batteries, already have been made as small as a lipstick case. With such small equipment, a model plane could have a watch-sized selector to operate all its controls during flight.

Frankly, we see little future for your control device. Maybe you'll be able to prove us wrong. We hope so.

● *Salt Shaker That Won't Spill*

Stanley P. Jones of Provo, Utah, sends a description of a non-spillable salt shaker for lunch boxes and camping outfits.

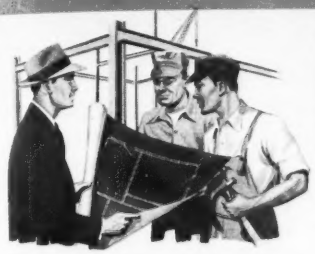
ANSWER: We see nothing in this design that you can protect by a patent. If you will buy a box of almost any brand of talcum powder, you'll find that the design you suggest already is being used on the powder container. The manufacturer doesn't care if you put talcum or salt in the box. And you can't expect good coverage on the ingredients you plan to use in your container.

Also, many types of nonspilling containers for salt have been designed for use expressly by campers. Your trouble is that you didn't check first and find out what was already on the market.

INVENTORS

Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information, free.

INSTITUTE of AMERICAN INVENTORS
Dept. 5, 1926 Eye St. N.W., Washington 6, D.C.



Learn BUILDING

AT HOME • All Blue Print Building Plans, Specifications, Lessons Furnished

FIND OUT ABOUT TRAINING AND OPPORTUNITIES FOR YOU IN BUILDING

Established in 1904, Chicago Technical College offers you thorough, practical training in Building, by home-study. Mail coupon for free information. See what this Course has done for others, what it can do for you. Read what Chicago Tech graduates say about their work, earnings, success. Learn the rewards awaiting you as a trained builder—and how quickly, easily you can get started. Simply MAIL COUPON TODAY in an envelope or paste on a penny postcard.

Earn more money as a building tradesman. Prepare for advancement and increased pay as a building foreman, superintendent, inspector, estimator, material buyer or salesman. Train to be a building contractor, have your own money-making business in this busy, prosperous building field.

More than 19 million new homes needed in U.S., say experts. New building now at rate of one million homes a year, plus 200,000 commercial buildings, plus expanding farm building construction.

Mail coupon today. FREE book tells how you learn Building Construction—How to Read Blueprints, and Estimate Building Costs—at home in your spare time. Learn modern construction methods and materials, how to lay out work and direct all building operations. This is the training needed for rapid advancement to higher-paid jobs, or your own successful building business.

MAIL COUPON NOW

CHICAGO TECHNICAL COLLEGE
M-169, Tech Bldg., 2000 So. Michigan Ave.
Chicago 16, Illinois

Mail me FREE building Lesson with information about big opportunities in BUILDING and how I can train at home.

Name..... Age.....

Address .....

City..... Zone..... State.....

CHICAGO TECHNICAL COLLEGE
M-169, Tech Building, 2000 South Michigan Ave.
Chicago 16, Illinois

PLASTICS OFFERS YOU A GREAT FUTURE!

BECAUSE MORE AND MORE PRODUCTS ARE BEING MADE OF PLASTICS!

LOOK AT THESE INDUSTRIES!

AUTOMOBILE · CONSTRUCTION · ELECTRICAL · TEXTILE · SPORTING GOODS · RUBBER COMPOUNDS · LEATHER · MARINE · GENERAL MANUFACTURING

ON AND ON—through industry after industry—thousands of useful, practical, everyday products made BETTER and CHEAPER from some kind of PLASTIC. That's why men and women trained in Plastics can qualify for a great future. YOU CAN GET THIS TRAINING NOW AT PLASTICS INSTITUTE, the world's largest and finest school devoted exclusively to Plastics.

STUDY AT HOME

You can enroll for Plastics Institute's famous Home Study Course which prepares you for a career in plastics while you carry on your present activities. Or come to California for Resident Training in P.I.T.I. shops and laboratories.
START YOUR TRAINING NOW—Mail coupon below for complete details of Plastics Institute's training developed under guidance of industry leaders. No wasted time or padded lessons. You learn quickly, easily.

YOU MAKE THINGS—Home study students get practical kit materials. You make handsome, useful articles. You form, dye, decorate, cast and laminate various types of plastics. You get experience designing and developing your own ideas.

or AT PLASTICS INSTITUTE'S RESIDENT SCHOOL IN LOS ANGELES, CALIFORNIA

APPROVED For Veterans · **AVAILABLE** For Non-Veterans

PLASTICS INDUSTRIES TECHNICAL INSTITUTE

• NEW YORK • CHICAGO • LOS ANGELES •

Plastics Industries Technical Institute,
1601 S. Western Ave., Los Angeles 6, Calif. M.I. — 9 8
Gentlemen: Please send me literature and information on your
Resident School Courses ☐ Home Training Courses ☐

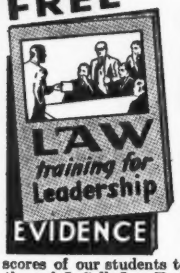
Name ..... Age.....

Street ..... Zone.....

City ..... State.....

Veteran..... Non-Veteran..... Previous Education .....

FREE



TO the MAN INTERESTED IN

LAW

Every question about Law and its value to you is answered in LaSalle's 48-page booklet, "Law Training for Leadership." And the question of *how* you can master Law is answered in the companion booklet, "Evidence"—in which scores of our students tell how they have advanced through LaSalle Law Training in spare hours at home.

Legal training gives you what the business and professional world prizes highly and rewards liberally—a keen, analytical mind, the ability to judge shrewdly, talk convincingly, and act with confidence.

LaSalle's "Problem Method" of personalized instruction by lawyer-instructors gives you practice in handling legal problems . . . you *learn by doing*, not by memorizing rules. We guide you step-by-step, furnish all texts, including remarkable 14-volume Law Library prepared by leading law professors and lawyers, and used as reference in many Law libraries and offices. Degree of LL.B. conferred. Low cost, easy terms.

Investigate *your* opportunities in Law. Mail coupon today for free booklets described—without obligation.

LA SALLE EXTENSION UNIVERSITY
A Correspondence Institution
417 S. Dearborn St. Dept. 9493-L, Chicago 5, Ill.

Send me "Law Training for Leadership" and "Evidence"—without obligation.

*Name*_____ *Age*_____

*Street*_____

*City, Zone & State*_____

New BRUSH Electroplater

ESPECIALLY BUILT FOR MECHANICS, MODEL MAKERS HOME CRAFTSMEN

- MODEL MAKERS
- MAINTENANCE
- HOBBY SHOPS
- HOME SHOPS
- SALVAGE PARTS

Easy to Plate GOLD, SILVER, NICKEL, COPPER, etc... *For Pleasure and Profit!*

If you have a workshop—at home or in business—you need this new Warner Electroplater. At the stroke of an electrified brush, you can electroplate models and projects—you can replate worn articles, faucets, tools, fixtures, silverware, etc. with a durable, sparkling coat of metal... Gold, Silver, Nickel, Copper, Cadmium, *and after a bit of practice,* even Chromium! Everything furnished—equipment complete, ready for use. *By doing a bit of work for others, your machine can soon pay for itself.* So make your shop complete by getting a Warner Electroplater right away. Send today for FREE PLATING SAMPLE and illustrated literature. ACT AT ONCE.

WARNER ELECTRIC CO., Inc., Dept. T-6
1512 Jarvis Ave., Chicago 26, Illinois

FREE *Details & Sample!*

WARNER ELECTRIC CO., Inc., 1512 Jarvis Ave., Chicago 26, Illinois, Dept. T-6

Gentlemen: Send Free Sample and Details to:

*Name*_____

*Address*_____

*City*_____ *State*_____

WAR SURPLUS BARGAINS

$500,000.00 INVENTORY for QUICK LIQUIDATION

U. S. Gov't. surplus and other items for home, shop, factory, farm and outdoors. New, used and reconditioned. Tremendous savings! All priced for quick sale.

Send 10c to cover cost and mailing for this big illustrated bargain catalog. Write today!

STARK'S Dept. MI-9 509 So. STATE STREET CHICAGO 5, ILLINOIS

OUT OF PAWN!

Genuine DIAMONDS

Direct to You—at Amazing Savings! Over 100,000 satisfied customers—Sold with Iron-Clad Money-Back Guarantee. Order from this ad. Write for FREE ILLUSTRATED CATALOG.

1/5 CARAT $49 $125 Value Tax incl.
1/2 CARAT $95 $200 Value Tax incl.

BERMAN'S COLLATERAL LOAN BANK
Dept. MI-3, 636-38 W. Balto St. Baltimore 1, Md.

"YOU ARE UNDER ARREST!"

Help Bring Crooks to Justice Through Scientific

CRIME DETECTION!

We have taught thousands this exciting, profitable, pleasant profession. Let us teach you **in your own home.** Learn Finger Printing, Firearms Indentification, Police Photography, Secret Service Methods thoroughly, quickly, at small cost. Over 800 of all American Bureaus of Identification employ I. A. S. students or graduates. We can prepare you for this fascinating work, during spare time. Write today, stating age, for "Blue Book of Crime."

INSTITUTE OF APPLIED SCIENCE, 1920 Sunnyside Ave., Dept. 2356, Chicago 40, Ill.

STUDY AT HOME

WITH AN EDUCATIONAL INSTITUTION

Courses in ENGINEERING: Electrical; Civil; Mechanical; Drafting; Architectural; Automotive; Steam; Diesel; Aeronautical; Radio; Structural; Mining; Industrial; Petroleum; Marine; Refrigeration; Air Conditioning; Chemical.

Courses in ARTS AND SCIENCES: Philosophy; Education; Letters; Psychology; Public Health; Medical Jurisprudence; Sociology; Physics; Chemistry; Geology; Pol. Science; Theology; Law; Business and Commerce; Accounting; Mathematics; Statistics; Agriculture.

McKinley-Roosevelt Incorporated, 4610-CC, Sheridan Rd., Chicago 40, Illinois

RAISE

GOLDEN HAMSTERS

The new wonder animals from Syria. Often called Toy Bears. Delightful pets . . . Everyone wants them . . . Laboratories need thousands. Clean, odorless. Raise anywhere. Profitable and interesting. Write today for big, free, picture book.

GULF HAMSTERY, 1553 BASIL, MOBILE, ALA.

An ASSURED FUTURE for You

Learn Profitable WATCH REPAIRING

BIG MONEY WHILE LEARNING

Study at Home — or at Our Accredited School

Complete Home Correspondence Course or G. I. Approved Residence School Plan. Also, Post-Graduate Plan at school for correspondence students.

Write Today for COMPLETE DETAILS to

American Institute of Specialized Watch Repair

Dept. 400 270-76 East Building Grand Rapids, Michigan

MAKE MORE MONEY

and Build for Yourself PERSONAL SECURITY in a Steady Trade or a Small Sound Business of Your Own

watch and clock repairing

LEARN AT HOME—IN YOUR SPARE TIME

Prepare now for a happy future of prosperity, security. Fascinating high-grade occupation for men of almost any age or physical condition. You can earn while you learn.

PRACTICAL COURSE IN HOROLOGY How-to-do-it lessons for beginners as well as those already in the trade. Thorough self-instruction training in American and Swiss watches, clocks. Contains a wealth of helpful photos, drawings, diagrams, charts, etc. Only **$4.95** for everything, complete. Satisfaction or refund guaranteed. Mail no-risk coupon below.

SWEDISH BODY MASSAGE

A Dignified Profitable Profession

At home, at low cost, you can learn the elements of Swedish **Massage** and **Hydrotherapy.** Many qualified men and women earn fine salaries in private clubs, institutions, hospitals, sanatoriums, etc. Some go into business for themselves practicing either full time or spare time and **make good money.** These easy-to-understand instructions are strictly practical and up-to-date. Includes anatomy, physiology, detailed procedure for a complete body massage, approved exercises, etc. Also includes business information on **how to build a steady practice of your own.** Excellently illustrated throughout; step-by-step explanations with diagrams. Complete, **only $6.95** postpaid. Money-back guarantee. Mail coupon at bottom of page today.

practical RADIO servicing

SELF-INSTRUCTION COURSE Teaches you the practical side of radio . . . repair, adjustment, operation, alteration, trouble-shooting. No previous knowledge necessary. Prepare to set up a shop of your own—or train for the big industrial electronics field. Simplified lessons, including mathematics, review questions, problems, answers. Up-to-date! Only **$3.95**, complete. Money-back guarantee. Use coupon below.

REAL ESTATE BUSINESS

The foundation of all wealth is land! Train yourself for a career in this booming profession. Here is the information you need on how to get started and how to get ahead in real estate. Includes instructions in appraisals, valuations, management, investments, practical real estate operating, low cost housing, the law on real estate transactions including legal forms, etc., salesmanship, and many other subjects a successful real estate man must know. Strictly up-to-date. Complete, only **$6.95.** Money-back guarantee. Use No-Risk coupon below.

INSURANCE BUSINESS. How to make money selling life insurance. Virtually a self-training course on how to get started in this profitable profession, how to get prospects to buy NOW, plus practical instructions on nearly every other important phase of life insurance business! Actual examples given throughout—no generalized discussion. All brass-tacks money-making facts you can turn into quick cash. Full price only **$6.95.** Mail No-Risk Coupon below.

APARTMENT HOUSE MANAGEMENT. Wonderful field for ambitious men and women, especially those over 40. Experienced managers have steady work, good pay and SECURITY. Satisfaction or money-back guarantee. Complete, only **$5.95.** Mail coupon below today.

WRITING FOR MONEY COURSE. Specific, practical instruction on how to get frequent checks for $5, $10 and more writing shorts, fillers, etc., for magazines, newspapers. Complete in 7 volumes, including "Where and How to Sell Manuscripts." Full price only **$5.95.**

JEWELERS & WATCHMAKERS CYCLOPEDIA. Packed with trade secrets, manufacturing processes, little-known formulas, etc., for opticians, stone setters, engravers, case makers, horologists, photographers and others. 1001 money-making ideas for the practical man! Only **$1.69.**

HOW TO BUY & SELL OLD GOLD, ETC. A new to-the-point Technical Bulletin to teach you how to make money dealing in precious metals—broken jewelry, old gold, silver, platinum, etc. Enormous opportunities for those with experience. Only **$1.00.**

HOW TO RUN A FARM. Of course you can learn from experience but why wear yourself down and squander several years finding out the hard way. Illustrated instructions on "Fundamentals of Farming and Farm Life": cover: poultry, livestock, soil, implements, crops, gardens, trees, milk products, etc. Only **$2.69.**

COMPLETE SHORTHAND COURSE. Full 12-lesson self-study course in standard system used by thousands of lightning-quick male court reporters and expert stenographers. 5 times faster than writing longhand! Complete outfit for self-instruction, only **$4.95.**

PRACTICAL ACCOUNTING. For men who want to follow accountancy as a profession and for managers and owners who want to increase their business profits. "Principles of Accounting" covers whole subject and includes hundreds of sample forms, problems, solutions, etc. Full price, only **$4.95,** complete.

How to Order: In coupon to right check courses you want, print your name and full address, then mail coupon. Send payment with order and we'll pay all postage charges. On C.O.D. shipments you pay charges.

Satisfaction Guaranteed or Your Money Back

NELSON-HALL COMPANY (Established 1908)
1139 South Wabash Ave., Dept. J-03, CHICAGO 5, ILL.

LOCKSMITHING and KEY MAKING

New Practical Up-to-Date Course!

Prepare to go into business for yourself as a locksmith—or learn locksmithing as a sideline to increase your present earnings. Here is MONEY-MAKING knowledge for carpenters, mechanics, hardware dealers, gunsmiths, cycle shops, fix-it shops, service stations, maintenance men, etc. And certainly every home-owner and handyman will find it profitable to know how to tinker intelligently with locks and keys.

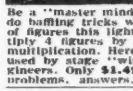
53 EASY ILLUSTRATED LESSONS

Written by a Master Locksmith. Teaches you professional "secrets." How to pick locks, de-code, make master keys, install and service key systems, etc. Step-by-step detailed instructions explain and illustrate every operation. You'll thoroughly ENJOY this interesting work! **FULL PRICE, ONLY $3.95.**

Look over this unusual one-volume course at our risk. You must be delighted—or you get your deposit back and the inspection won't cost you a penny. Complete, **only $3.95;** nothing more to pay. Fill in the No-Risk Coupon at bottom of this page . . . and mail it today! You'll be glad you did.

Short-Cut Mathematics COMBINED WITH Practical Mechanics Simplified

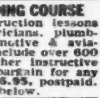
Be a "master mind." Learn how to juggle figures, do baffling tricks with numbers. Add long columns of figures this lightning-quick, short-cut way. Multiply 4 figures by 4 figures without old-fashioned multiplication. Here are speedy, simplified systems used by stage "wizards," expert accountants, engineers. Only **$1.49.** Course includes illustrations, problems, answers. Mail coupon below!



COMPLETE BLUEPRINT READING COURSE

Interesting, simplified self-instruction lessons for builders, mechanics, electricians, plumbers, welders, carpenters, automotive & aviation workers, etc. 24 volumes include over 600 actual blueprints, diagrams, other instructive step-by-step pictures. Unusual bargain for any practical man. Complete, only **$6.95,** postpaid. Satisfaction or refund. Coupon below.

BUILD IT YOURSELF



Be a practical handyman. Save time and money with these professional Tricks-of-the-Trade. Carpentry made easy! New self-instruction course in one handy volume, complete with full page photographs, diagrams, etc. Teaches woodworking, painting & decorating, upholstering, power tools, cabinet making, etc. Full price only **$1.98.** Money-back Guarantee. Mail coupon today!

"HOW TO GET ALONG IN THIS WORLD"

Boiled-down tips on SUCCESS! Here, gathered together for the first time, are 5000 gems of worldly wisdom on how to live joyously, successfully . . . how to handle people, make money, be happy. Written out of actual experience by the best brains of mankind . . . during the past four thousand years! To-the-point, workable instructions on the practical art of getting ahead. Included are lessons on HOW TO USE these quotations in your daily life. Complete, only **$1.00,** postpaid. Check "How to Get Along" in coupon below.

CIVIL SERVICE

Looking for a government job? (Federal, State, City). Or a job with some big industrial or business organization? Or work in an institution? Then you NEED this complete "Practice Tests for All Jobs." Explains in detail how intelligence tests and aptitude tests are given—how they are used for hiring, classifying, assigning and promoting—and how they should be handled for best results. Shows you what the tests are like, gives you a very definite idea of the kind of questions you will be asked, tells you what you have to know, how to get a top mark. Contains practice materials, study outlines, sample tests, etc. For anyone interested in mental self-improvement! Full price only **$3.95.** Check "Civil Service" on No-Risk Coupon below. Satisfaction or refund guaranteed.

MAIL THIS NO-RISK COUPON TODAY!

NELSON-HALL CO., 1139 S. Wabash Ave., Dept. J-03, Chicago 5, Ill.

Please rush me the practical courses I am checking below. Each is complete and I understand this is the full price. If I am not more than satisfied I will return the material and you will make full immediate refund, without question or quibble.

( ) Watch & Clock Repairing	$4.95	( ) Practical Accounting	$4.95
( ) Swedish Body Massage	6.95	( ) Locksmithing Course	3.95
( ) Practical Radio Servicing	3.95	( ) Short-Cut Mathematics	1.49
( ) Real Estate Business	6.95	( ) Blueprint Reading Course	6.95
( ) Life Insurance	6.95	( ) Build It Yourself	1.98
( ) Apartment House Mgmt.	5.95	( ) How to Get Along	1.00
( ) Writing for Money Course	4.95	( ) Civil Service	3.95
( ) Jewelers' Cyclopedia	1.69	( ) How To Buy & Sell Old Gold, Etc.	1.00
( ) How to Run a Farm	2.69		
( ) Complete Shorthand Course	4.95		

☐ I enclose $..... in full payment. Ship entirely postpaid.
☐ Ship C.O.D. for $..... plus postage.

NAME.....

ADDRESS.....

CITY..... STATE.....

NOW! Build Your Future On DIESEL Opportunities

LOOK around you. See the way tractors, trucks, buses, railroads, ships, power plants and equipment of many kinds are "going Diesel." Every day new opportunities are opening—in industrial and farming communities—for trained men who can install, maintain, operate and repair Diesel engines. Plan now to build your future in this growing field.

Diesel Knowledge is Earning Power

You don't have to give up your present job. Now, you can begin learning DIESEL in spare time at home. UEI practical training teaches you, step by step, how Diesel engines operate, how fuel systems work, repairs, accessories and auxiliary equipment; a world of Diesel "know how." Includes actual practice on Diesel equipment in our shop under expert guidance. UEI training methods are successful. For over 20 years they have helped mechanically inclined men better themselves.

Send Coupon for FREE FACTS

NOW IT'S UP TO YOU!

Coupon below brings you all the facts without cost or obligation. Get going today! MAIL COUPON NOW. (Founded 1927)

UTILITIES ENGINEERING INSTITUTE
Diesel Division
Dept. 298-D Chicago 14, Ill.

UTILITIES ENGINEERING INSTITUTE, Diesel Division
2521 Sheffield Ave., Dept. 298-D, Chicago 14, Ill.

Please send me Free Facts about Diesel opportunities and training.

NAME..... Age.....

ADDRESS .....

CITY..... Zone or County..... STATE.....

☐ Check here for special information if you are under 17.

Draw Your Way to Happiness-

ART FOR PLEASURE AND PROFIT

Learn to Draw in Spare Time—At Home!

TRAINED ARTISTS are capable of earning $60, $75 AND MORE A WEEK

Prepare yourself for a pleasant, profitable Art career. COMMERCIAL ART, DESIGNING, CARTOONING — all in one complete home study course. Enjoy a career with no age or physical limitations. Many pleasant art positions available in this great field. You can become your own boss, work at home and on your own time. Many students earn extra money while learning by designing greeting cards, rendering signs, lettering, etc. W. S. A. is now in its 34th successful year of training men and women. No previous art experience necessary, we teach you step-by-step and prepare you for good jobs. TWO ART OUTFITS and other features included with training. Write for FREE BOOK. "Art for Pleasure & Profit"—tells about our course, instruction service and commercial opportunities for you.

APPROVED FOR VETERANS UNDER G.I. BILL

FREE BOOK gives details

Washington School of Art, Studio 209M
1115—15th St., N.W., Washington 5, D. C.

Please send me full information and your Free Book, "Art for Pleasure and Profit."

Name..... AGE.....

Street .....

City..... Zone.... State.....

☐ I am entitled to training under the GI Bill

How to Make Liquid Marble

And BIG PROFITS In Your Own Business

Amazing Liquid Synthetic Marble can be made at home without machinery. Needs no heat or pressure. Can be poured into molds for casting expensive novelties. Liquid Synthetic Marble can be made in any color. It is even *more beautiful than genuine marble* because of its highly glazed finish. Costs far less. **FLEXIBLE MOLDS:** Make your own Flexible Molds. Cast novelties, statuary, desk sets, book-ends, etc., out of Liquid Marble, plaster and many other molding compositions. A large sized mold costs but a few cents. Hundreds of casts can be taken from a single mold. **UNLIMITED MARKET:** You will find steady year-round demand in your own community. No selling problem. We supply names of buyers for your finished products. Let **BING PRODUCTS** show you how to start with a small investment and build a permanent, independent, profitable business! Write now for **FREE CATALOG!**

BING PRODUCTS: Dept. MI-9A 88 Broad Street Boston 10, Mass.

Learn PHOTOGRAPHY at Home

Splendid Hobby or Vocation

Prepare in spare time. Practical basic training. Long-established school. Send for free booklet, "Opportunities in Modern Photography" and particulars. Sent postage prepaid. No obligation.

AMERICAN SCHOOL OF PHOTOGRAPHY
1315 S. Michigan Avenue, Dept. 2956 Chicago 5, Illinois

$5.00 to $6.00 PER HOUR!

It is not unusual for trained electrical appliance repairmen to charge on that basis! If mechanically inclined, write Christy Supply Co., 2835 N. Central Ave., Dept. D-5806, Chicago 34.

Free Catalog; 1000 Novelties, 64 Pages

Send for amazing catalog of novelties. Includes live animals scientific supplies, hobby supplies, planes & boats, looms, magic tricks, joke articles, unusual seeds, time savers, cameras, optical goods, movies, projectors, jewelry, telegraph sets, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radio and experimental sets, auto & bike accessories, telescopes, magnifiers, compasses, banks, printing sets, engines, shockers, knives, billfolds, guns and rifles, books, games, live chameleons, rings, etc., etc., etc. Send name and address with stamp or coin to help cover postage to:

JOHNSON SMITH & CO., Dept. B-318, Detroit 7, Mich.

BE A REAL ESTATE BROKER PAYS BIG!

EASY TO LEARN — Start and run your own business *quickly*. Many graduates report making up to $1000 a month. Course of study covers *Sales, Property Management, Appraising, Loans, Mortgages* and hundreds of related subjects. Course in home study or **classroom instruction in leading cities.** Big new illustrated catalog from this nationally known school. G. I. Approved. Send a Post Card Today.

FREE

WEAVER SCHOOL OF REAL ESTATE (Estab. 1936)
25 E. Pershing Road Dept. 1N Kansas City, Mo.

TINY RADIO!

FITS IN YOUR HAND!

REALLY WORKS TOO! Unbreakable RED plastic Cabinets. **NO TUBES, BATTERIES OR ELECTRIC "PLUG-INS"!** Works on new Patented "Permacrystal" and Roto Tuner! **EASY TO USE! SHOULD LAST FOR YEARS!**

GUARANTEED TO WORK on local programs by following instructions

ONLY $3.99 Postpaid or send only $1.00 (bill, money order or check) and pay postman $2.99 plus postage on delivery.

COMPLETE READY TO PLAY, with personal phone. MARVELOUS GIFTS—BARGAIN PRICED! GET YOUR TINY RADIO NOW!

PAKETTE PRODUCTS CO., Inc., Dept. TMI-9, Kearney, Nebr.

GET INTO DRAFTING

The Draftsman Plays a most Important Part in INDUSTRY

DRAWING OUTFIT INCLUDED with Drafting courses

All the tools you need including folding drawing table. With them you can put your ideas on paper quickly and with accuracy. With training you are all set to master Drafting in months,—not years—at home.

Learn in Spare Time — At Home!

(or at the College in Chicago)

A few hours of pleasant home study every week — that's all. With Chicago Tech's help, you train yourself step by step. This tested method — developed over 44 years of C.T.C. progress — prepares men for good positions in industry.

Practically everything that's built or manufactured these days is constructed from blueprint drawings prepared by the draftsman. He is the KEY man in industry. No new machines can be built, no bridges erected, no buildings constructed until the draftsman has completed his work.

Drafting is clean, interesting, professional-type work. The draftsman is paid well to start. And he has real opportunities for advancement to high-pay jobs in Engineering. The tremendous production programs ahead in industry will require more draftsmen than ever before.

Send today for free information. See what this training has done for others, what it can do for you. Simply MAIL COUPON TODAY in an envelope or use a penny postcard.

CHICAGO TECHNICAL COLLEGE
M-272, Tech Building, 2000 South Michigan Ave.
Chicago 16, Illinois

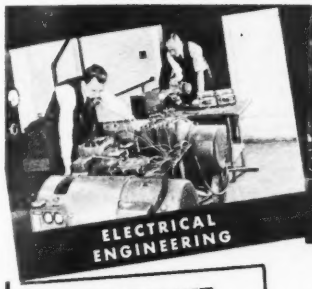
MAIL COUPON NOW

Chicago Technical College
M-272 Tech Bldg., 2000 So. Michigan Ave.
Chicago 16, Illinois

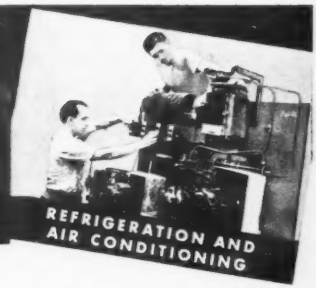
Mail me FREE Drafting Lesson with information about big opportunities in DRAFTING and how I can train at home.

☐ Architectural Drafting ☐ Electrical Drafting
☐ Machine Drafting ☐ Structural Drafting
☐ Builders' Course

Name _____ Age _____
Address _____
City _____ Zone ___ State _____


ELECTRICAL ENGINEERING

ELECTRONICS


REFRIGERATION AND AIR CONDITIONING

SPECIALIZE
In 6 Months to 3 Years
COURSES

SERVICE
6 to 12 Months
- Electricity
- Welding
- Refrigeration
- Heating

TECHNICIAN
1 to 2 Years
- Electricity
- Radio
- Electronics
- Refrigeration, Heating, and Air Conditioning

PROFESSIONAL
3 Years
- Electrical Engineering
  Bachelor of Science Degree

Major in Machinery or Electronics

PRACTICAL TECHNICAL TRAINING

Train for a substantial career in industry . . . or a business of your own. Our time-tested Concentric System enables you to build your career step by step. Each 6-month course is complete in itself, yet prepares you for advanced courses. Stay as long as circumstances permit until you reach the top step in your technical training. More than 1,538 students now enrolled from 48 states and 13 overseas countries. Faculty of 72 specialists. World-wide alumni counselor committee. Terms start April, July, Sept. SEND COUPON TODAY!

MILWAUKEE SCHOOL OF ENGINEERING
A Technical Institute Founded 1903

Milwaukee School of Engineering
Dept. MI-948, N. Broadway and E. State, Milwaukee, Wis.
Without obligation send me free booklet "Career Building" and more details on course in _____
Name _____ Age _____
Address _____
City _____ State _____

WAR SURPLUS BARGAINS

Save More Than ½ Regular Cost

GOVT. 7 x 50 BINOCULARS

We Supply Assembly Instructions

METAL PARTS—Set includes all Metal Parts—completely finished—for assembly of 7 X 50 Binoculars. No machining required. Bodies have been factory hinged and covered. A sturdy Binocular Carrying Case is optional with each set of Metal Parts.
Stock #842-B ...$39.40 Postpaid, plus $4.80 for Case—Total—$44.20

OPTICS—Set includes all Lenses and Prisms you need for assembling 7 X 50 Binoculars. These are in excellent condition—perfect or near-perfect—and have new low reflection coating.
Stock #5102-B .....**$25.00 Postpaid**

NOTICE! If you buy both Binocular Optics and Binocular Metal Parts, add 20% Federal Excise Tax to above prices.

ARMY'S 6 x 30 BINOCULARS

COMPLETE OPTICS & METAL PARTS—Model M-13A1, Waterproof Model, 6 x 30 Binoculars. Everything you need—ready for assembly. When finished will look like a regular factory job costing $102 to $120. The Optics are new, in perfect or near-perfect condition. Have new low reflection coating. Metal parts are new and perfect, all completely finished. No machining required. Bodies factory hinged and covered. Complete assembly instructions included.
Stock #830-B .....**$40.00 Postpaid plus $8.00 tax—Total $48.00.**

6 POWER GALILEAN TELESCOPE—(Commercial Surplus) 28mm dia. Achromatic Objective Lens. Sturdily constructed of Aluminum. 7" long, extends to 9". Complete with carrying case.
Stock #941-B .....**$3.00 Postpaid**

$200.00 DRIFT METER for $5.60—Adaptable to many uses or take apart to get 2 mounted Achromatic Lenses—Mirrors—Field Lens—Pantograph—Engraved Scales—Sponge Rubber Discs—metal parts and other components. Instrument weighs 4 lbs.
Stock #942-B .....**$5.60 Postpaid**

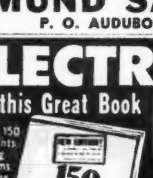
We have literally millions of war surplus lenses and prisms for sale at bargain prices. Write for Catalog "8"—Sent Free!

Satisfaction Guaranteed • Order by Stock No.

EDMUND SALVAGE CO.
P. O. AUDUBON, NEW JERSEY

ELECTRICIANS

Get this Great Book FREE



For Merely Examining Coyne's NEW Pay Raising

8 Volume Set APPLIED ELECTRICITY

Here's a *brand new* set of electrical books to give you the "know how" on all branches of electricity from appliance repairing to D.C. and A.C. equipment, electrical refrigeration, Industrial Electronics, etc. 3,400 subjects, 11,500 facts, latest methods explained in easy to follow instructions. To prove how valuable and Practical this set can be to you, I'll *give you a FREE copy* of my book "150 Shop Prints and How to Read Them" *just for looking over this set.* Written by the Coyne Staff and backed by 47 years' experience, this set has helped many ambitious electrical workers to *bigger pay and added opportunity.*

OFFER LIMITED • ACT NOW! If you act promptly, I'll send you the 8 volume set Applied Practical Electricity for 7 days' FREE examination . . . together with the 150 Shop Print Book. Look the set over 7 days. If you like it send either $22.75 cash or $3.00 after 7 days and $3.00 per month until $24 is paid. If you don't want the set, return it and YOU OWE NOTHING. *In either event you keep the 150 Shop Print Book absolutely FREE.* Coupon below is just a request to see the books free and to get my gift book for doing it. ACT—send coupon Today! **Technical Book Div., COYNE ELECTRICAL & RADIO SCHOOL, 500 S. Paulina St., Dept. 68-K1, Chicago 12, Ill.**

FREE Book Coupon

SEND NO MONEY

B. W. Cooke, Director, COYNE ELECTRICAL & RADIO SCHOOL
500 S. Paulina St., Dept. 68-K1, Chicago 12, Ill.

O. K., send me, postpaid, Coyne's new 8 volume, "Applied Practical Electricity" for 7 Days' FREE TRIAL per your offer. Also send, absolutely FREE, the book of 150 Shop Prints as a gift.

Name ..... Age____

Address .....

Town ..... Zone____ State_____

SOUTH BEND

LATHE COLLETS

Precision Steel and Brass Collets for use in any make of lathe or other machine that they will fit.

SPECIFICATIONS

Collet No.	Thread Dia. In.	Thread Length In.	Th'ds Per In.	Body Dia. In.	Collet Length In.	Head Dia. In.	Head Taper Deg.
3	.650	3/4	26	.6495	2-11/16	.852	12
2	.855	13/16	20	.8595	3-5/16	1.095	15
5	1.250	3/4	20	1.2495	3-9/32	1.452	10
4	.950	13/16	20	.9495	3	1.150	10

	No. 3	No. 2	No 5	No. 4
STEEL COLLET	$3.75	$4.00	$4.75	$4.25
BRASS COLLET	2.00	2.25	2.50	2.35

SOUTH BEND LATHE WORKS 453A E. Madison St. South Bend 22, Ind.

PHOTOGRAPHY

for Today's—and Tomorrow's Better Opportunities

Ever-increasing demand for trained photographers in advertising, industry, science, publishing. N. Y. I.'s success-proved home study training qualifies you. Previous experience unnecessary. Details FREE! Also resident courses.

New York Institute of Photography, Dept. 153, 10 West 33 St., New York 1, N. Y

Get Ready for Big Opportunities! *Explore Dobe*

TOOLS AND EQUIPMENT SENT WHEN YOU START

Get a better job with more pay and pleasant working conditions. Get into Drafting—where all products start. I will train you at home—give you experience—on the same kind of jobs you will do with the best paying firms. I furnish instruments and all equipment when you start. Write today for vital facts and FREE book. Give age.

I Will Train You at Home Until You Get a **GOOD PAY JOB in DRAFTING**

ENGINEER DOBE • Div. 46 • Libertyville, Ill.

MEN'S WRIST WATCHES $3.99

Brand new. Tested timekeepers. With Written guarantee certificate by nationally Known American watch manufacturer. Sturdy chrome plated case. Open face dial. **Genuine rustproof expansion band.** Rushed postpaid for only $3.99 plus 10% tax! C.O.D.'s $3.99 plus postal charges. United Products Co., 7941 S. Halsted, Dept. S8-101, Chicago 20, Ill.

INSTANT NICKEL

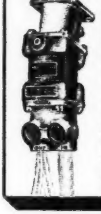
NO CURRENT OR BATTERIES USED

COMPLETE $2.50 POST PAID 1948 PATENT AGENTS WANTED

JUST PATENTED—Now everybody can NICKEL PLATE. No equipment or electricity needed. Just rub. A BLESSING to Doctors, hobbyists, Auto, Machinery and home owners and practically everybody. NO POISONOUS CYANIDES OR QUICKSILVER. It will heavily plate, INSTANTLY. Steel, Iron, Copper, Brass, etc. IT'S NEW, DIFFERENT, PRACTICAL, ECONOMICAL—Just rub with a cloth to any thickness. Fascinating hobby—Plate for neighbors and friends. **MONEY BACK GUARANTEE.** C.O.D.'s few cents extra. **INSTANT PLATING PRODUCTS, DEPT. D-1, 3439 So. Michigan, Chicago 16, Ill.**

HIGH PRESSURE HYDRAULIC PUMP

FOR HOME, SHOP AND FARM USE



Genuine Vickers constant displacement high pressure pump. Use it for any type of liquid pumping job. Will pump 400 gal. per hour at 3750 R.P.M. Precision piston type design provides 1000 lbs. per square inch pressure. Self priming. Standard thread ¾ inch intake and discharge ports. With ⅝ inch splined shaft—just add pulley and power and you're ready to go.

HAS HUNDREDS OF USES

These pumps are brand new. Original acquisition cost approx. $100.00. Can also be used as hydraulic motor: for rams, opening doors, hydraulic lifts, etc.—also for any liquid transporting job. War surplus, but brand new. Shp. wgt. 7 lbs. Send check or money order. Satisfaction guaranteed. Postpaid in U.S.A. Each only------ **$9.95**

SOUTHWEST AERO SUPPLY, Dept. M19
Drawer 488 South Houston, Texas

New Advertising Machine

Prints & Illustrates 1c Post Cards

FREE Learn *how* thousands of business men, in every line, are boosting sales in spite of conditions—with 1¢ messages—printed and illustrated in a few minutes on gov'nt post cards—with amazing new patented **CARDMASTER.** Your "today's" ideas, read by your prospects next morning. Not a toy, but a sturdy advertising machine, built to last for years. Low price, sold direct. Guaranteed for five years. Send name today.

SEND NAME We'll send **FREE** illustrated book of money-making IDEAS for your business and complete, unique advertising plans. RUSH YOUR NAME TODAY.

CARDMASTER COMPANY
4546 RAVENSWOOD, Dept. 209, CHICAGO 40, ILL.

LAW STUDY AT HOME for PERSONAL SUCCESS and LARGER EARNINGS. 39 years expert instruction—over 114,000 students enrolled. LL.B. Degree awarded. All text material furnished. Easy payment plan. Send for FREE BOOK — "Law and Executive Guidance." NOW!

AMERICAN EXTENSION SCHOOL OF LAW
Dept. 93-X, 646 N. Michigan Ave., Chicago 11, Ill.

AVIATION TRAINING

AERONAUTICAL ENGINEERING
AIRCRAFT and ENGINE MECHANICS (A & E)

Train on famous Northrop Field – New classes starting soon.
Write for illustrated catalog.

Northrop Aeronautical Institute
1523 E. BROADWAY *Division of Northrop Aircraft, Inc.* LOS ANGELES COUNTY
HAWTHORNE CALIFORNIA
APPROVED FOR VETERANS

IMPROVE YOUR PENMANSHIP

Write Like This

Complete OUTLINE FREE!

YOUR penmanship can be improved in 3 hours or corrected to your satisfaction in 10 hours' practice with my *DEFINITE HAND CONTROLS.* New way!

WRITE **OZMENT,** 36, ST. LOUIS, MISSOURI

Monastery Secrets

Forbidden knowledge of Tibet... strange secrets of nature. Learn to control the forces of the Universe as exercised by the sages, cloistered high in the Himalayas. Write *today* for FREE book. Address: Scribe H.Q.J.

The ROSICRUCIANS
(AMORC)
San Jose · California

HE Mailed This Coupon

CHARLES ATLAS
115 East 23rd St, New York 10, N. Y.
I want the proof that your system of "Dynamic Tension" will help make a New Man of me gives me a healthy, husky body and big muscle development. Send me your free book, "Everlasting Health and Strength."
Name THOMAS MANFRE (Please print plainly)
Address 27-- 95 ...
City Long Island State N.Y.

...and Here's the Handsome Prize-Winning Body I Gave Him!

Thomas Manfre of New York mailed my coupon. Got my free book. Won my Atlas-Champion, Sterling Silver Cup. He says: "Look at me NOW! *'Dynamic Tension'* WORKS! I'm proud of the natural, easy way you made me an 'Atlas Champion'!"

Let Me Prove I Can Make You a New Man!

Would you like greater development—a muscular body? Then listen: I was once a 97 lb. weakling. Afraid to fight, ashamed to be seen in a swimming suit. Then I discovered the secret that changed me into "World's Most Perfectly Developed Man." My secret is *"Dynamic Tension."* Its purpose is to give you powerful rippling muscles you like to see in your mirror. And for those with systems sluggish from lack of exercise—to help them tone up their entire body, inside and out.

Only 15 Minutes a Day

My method—*"Dynamic Tension"*—will turn the trick for you. **No theory**—every exercise is practical. And, man, **so easy!** Spend only 15 minutes a day in your own home. From the very start you'll be using my method of *"Dynamic Tension"* almost unconsciously every minute of the day—walking, bending over, etc.—to BUILD MUSCLE and VITALITY.

CHARLES ATLAS
An untouched photo of Charles Atlas, twice winner and holder of the title "The World's Most Perfectly Developed Man."

FREE BOOK "Everlasting Health and Strength"

In it I talk to you in straight-from-the-shoulder language. Packed with inspirational pictures of myself and pupils—fellows who became NEW MEN in strength, my way. Let me show you what I helped THEM do. See what I can do for YOU! For a real thrill, send for this book **today.** AT ONCE.

CHARLES ATLAS,
Dept. 6J, 115 E. 23rd St., New York City.

CHARLES ATLAS
Dept. 6J, 115 East 23rd St., New York, N. Y.
I want proof *"Dynamic Tension"* will help make me a New Man—with healthy, husky body, big muscle development. Send FREE book, "Everlasting Health and Strength" and details about Trial Offer.

Name ----------Age------
(Please print or write plainly)
Address ----------
City ----------State------

It's YOUR future—Make the most of it!

Start now to earn the bigger pay in electrical repair

WAS there ever such an opportunity to get started in electrical maintenance and repair—and at top-notch wages? Are you ready—with experience and ability—to cash in on it? Others are getting just the sort of background needed—quick! practical!—to handle the great variety of electrical maintenance and repair work TODAY—from this well-known electrical library. You can too!

THE LIBRARY OF ELECTRICAL MAINTENANCE AND REPAIR

5 vols., 1826 pages, 1724 illustrations

Gives you the "know-how" to tackle any wiring or motor job. Five books show you HOW—to install all types of motor and generator units—to inspect and repair motor starters and generators—to diagnose motor and generator troubles—to figure new windings for old cores—DC and AC windings—to test armature windings—test induction motors, etc., etc. One book is full of trouble shooting charts that show quickly symptoms, causes, specific remedies, etc.

Take the first step toward improving YOUR future—

Mail this coupon TODAY

No money down—special price—easy payments—FREE trial

McGraw-Hill Book Co., Inc., 330 W. 42 St., New York 18, N. Y.

Send me for ten days' free examination the Electrical Maintenance and Repair Library. If satisfactory I will send you $2.50 in 10 days and $3.00 monthly until the price of $17.50 is paid. If not wanted I will return books postpaid.

Name .....

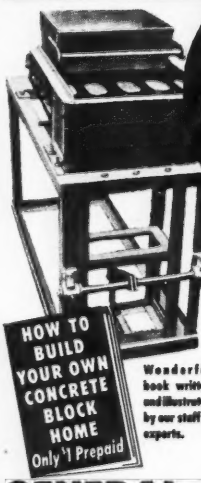
Home Address .....

City and State .....

Company .....

Position MMX-9-48

CASH IN ON THE BUILDING BOOM!



MAKE BUILDING BLOCKS RIGHT IN YOUR OWN BACKYARD AMAZING GENERAL BLOCK MACHINE

CAPACITY 1000 BLOCKS PER DAY

ONLY $199 LESS MOTOR F.O.B. PLANT SHIPPING WEIGHT 400 lbs.

Cinder and Concrete Blocks in big demand. Sell all you produce, to contractors and builder supply yards, at 15c to 25c each. Easy to start your own profitable business.

GENERAL BLOCK MACHINE can be operated indoors or out, in floor space 9 ft. x 10 ft. All steel construction. Vibrator mounted in sealed ball bearings. Simple to run. Powered by ½ H.P. electric motor or 1 H.P. gas engine. Produces up to 1,000 8x8x16 blocks in 8 hour day. Superior 3 core type, meeting all building code requirements. Produces 4x8x16, 8x8x16, 12x8x16 blocks. Material for blocks, cinders, cement; and sand; obtainable anywhere. Full instructions and mixing formulas with each machine. Immediate Delivery. Mail coupon at once for full details, sent free without obligation.

HOW TO BUILD YOUR OWN CONCRETE BLOCK HOME Only $1 Prepaid

Wonderful book written and illustrated by our staff of experts.

GENERAL ENGINES CO.

(EASTERN DIVISION) DEPT. C — DREXEL BLDG., PHILA. 6, PA.

Shows you 8 ways to save money and how to make and lay blocks, laying out building lines, mixing your own concrete, building steps, porches and concrete floors, includes floor plans for 6 beautiful easy to construct concrete block bungalows. Mail coupon at once with $1.

Name .....

Address .....

City ..... Zone ... State .....

How to Write

Short Stories, Mysteries, Articles—Free Lesson Shows You How at Home

The demand for writers is creating great new opportunities for people with an urge to write. It's not as hard to succeed as you may imagine. Most famous authors come from ordinary walks of life. At home, you too may learn fiction writing, the best basis for all fields—short stories, novels, features, articles, radio scripts. Palmer Institute's Home Study Training (Established 1917) is endorsed by Rupert Hughes, Ruth Comfort Mitchell, Keith Monroe, A. E. Van Vogt and other famous authors and by scores of successful graduates. Complete instruction material and professional coaching to develop your own style. FREE book and sample lesson show how you may enjoy an ideal part time or full time career. Write today (no salesman will call). Veterans: advise us if you are eligible for G.I. Training.

PALMER INSTITUTE OF AUTHORSHIP • Desk Y-98
1680 N. Sycamore • Hollywood 28, Calif.

MAKE MAGIC YOUR HOBBY
DO TRICKS FOR FUN OR PROFIT!

"84 AMAZING CARD TRICKS" at less than a penny each! Surprisingly easy to do. Order this book now and we will include 3 large catalogs of professional magical apparatus and a copy of "Magic is Fun" magazine. Mail 50c today in stamps or coin. Your money back guaranteed if not satisfied.

D. ROBBINS & CO., INC., Dept. A-10
152 W. 42 St., New York 18, N. Y.

WHY DON'T YOU WRITE?

Writing short stories, articles on business, homemaking, gardening, shop crafts, sports, local and club activities, etc., will enable you to earn extra money. In your own home, on your own time, the New York Copy Desk Method teaches you how to write the way newspaper men learn—by writing. Our unique "Writing Aptitude Test" tells whether you possess the fundamental qualities essential to successful writing. You'll enjoy this test. Write for it, without cost or obligation.

Veterans: *This course approved for Veterans' Training.*

NEWSPAPER INSTITUTE OF AMERICA
SUITE 5228-P, ONE PARK AVENUE, NEW YORK 16, N. Y.

CURIOUS?

About a

SHIP-IN-A-BOTTLE?

Here is the secret plus all of the material for only 75c postpaid, less bottle. Also send 10c for complete catalog and ask your dealer about this kit.

BRAUN-CRAFT 1232 Etowah, Dept. MI9 ROYAL OAK, MICHIGAN

75c Postpaid in U.S.A.

WANTED

MEN BETWEEN 18 AND 65 TO LEARN A TRADE

Write today for free information—no obligation. No salesman will call.

E. A. KING, President

2870 Elston Ave. Chicago 18, Ill.

***SAVE** on High Quality*
GABARDINE Dress Trousers
for Fall and Winter wear

$12.50 VALUE

$7.95 PR.

Huge direct-to-you volume enables us to give exceptional value! Fully guaranteed. Genuine virgin wool and fine-spun rayon blended. Warm. Twill weave resists wrinkles, holds crease, gives amazing wear. Expert fashion tailored for perfect fit. Zipper front. Roomy pockets. Blue, Tan, Sand, Lt. or Dk. Brown, Blue-Gray. WAIST: 28-38 pleated or 28-44 plain.

Send Only $1 with name, waist size, 1st and 2nd color selection. Pay postman balance plus C.O.D. Or, send entire amount, saves C.O.D. Money back within 10 days if you're not pleased.

LINCOLN TAILORS DEPT. MI-9 LINCOLN, NEBR.

SHATTERPROOF "ALL PURPOSE" STEEL BOTTLE

HAS HUNDREDS OF USES—FOR STORING LIQUIDS, GASES, etc. WILL TAKE UP TO 500 lbs. PRESSURE. MAY BE USED FOR INFLATING TIRES, etc.

Formerly used by AAF for oxygen storage! You can use it now as an air pressure tank for inflating tires, operating horns, air motors, etc. May also be used as a buoy or float or for water supply storage on boats, trailers and trucks. Ideal as shipping container for gases, chemicals, etc. Bottle is non-shatterable with working pressure up to 500 lbs. psi. and weighs only 5 lbs. when empty. Internal volume 500 cu. in. (approx. 9 qts.). Has ¾ in. pipe thread at each end. Approx. size 24x6 in. They won't last long at this low price. Guaranteed brand new. Order now!

REGULAR STEEL, EA. $2.95

Stainless Ea. $3.95

FOB Houston. Mail orders promptly filled. Send check or money order. Satisfaction guaranteed.

AERO PARTS SUPPLY, Dept. MI-9
MUNICIPAL AIRPORT HOUSTON 17, TEXAS

Free Sample!

Be the first to sell amazing, new GLOW IN THE DARK house numbers, switch plates, pictures, decals, religious articles, etc., etc. Represent a large manufacturer. Wonderful opportunity. BIG PROFITS. Write at once for FREE SAMPLE.

MADISON MILLS, Dept. H-6
303 Fourth Ave., New York 10, N.Y.

DUAL TAIL PIPE EXTENSION

Fits all cars—chrome plated

DEEP TONE
produced by 2½ inch outlets
Postage free on prepaid orders
DEALER INQUIRIES INVITED

$2.95

LYONS PRODUCTS COMPANY
Pat. Pend. 2426 S. LaBrea, Dept. MI9, Los Angeles 16, Calif.

NEW—FREE

BARGAIN CATALOG

Now ready for mailing. Thousands of Govt. and Civilian Surplus items. For the home, industry and farm. Machinery, motors, Hdw., Elec. Supplies, etc. Write NOW to

Midwest Surplus Sales Co. (2351MI)
2531 Indiana Kansas City 1, Mo.

Correspondence Courses in
RADIO and ELECTRICAL ENGINEERING

LOW AS $25

ELECTRICAL ENGINEERING. Get good grasp of wide electrical field. Modern. Very understandable. Theory made easy. **RADIO ENGINEERING.** Extra fine course in radio, public address, photo-electric work. Trains you to be super-service man, real vacuum tube technician. Tuition ONLY $25, either course. Deferred payment plan. Servicemen needed badly.

FREE Write for free copies of school catalogs, student magazines, etc.

LINCOLN ENGINEERING SCHOOL, Box 931, MI-336, Lincoln, Neb.

Be A MASTER PLUMBER

Earn $15 To $50 A Day

DON'T ENVY THE PLUMBER—BE ONE

Every skilled workman will tell you that Plumbers have the best of it. WINTER and SUMMER the Plumber is busy at top wages. No skilled Plumber is ever out of a job—compare his opportunities with any trade, plus the opportunities of having your own shop.
We teach you Plumbing with TOOLS (not books) under Licensed Master PLUMBERS in one of the finest equipped schools in America. We make you a Plumber, every branch is taught thoroughly—Lead Work—Blueprint for plan reading—all other tricks.

LEARN IN 32 WEEKS WITHOUT PREVIOUS EXPERIENCE

If you like to work with tools you owe it to yourself to investigate. No need to ever work as an apprentice. Get FREE bulletin. Write now! G. I. APPROVED. Our 24th year.

UNIVERSAL PLUMBING SCHOOL
809 HOLMES STREET KANSAS CITY, MO.

CRYING NEED FOR 2100 INVENTIONS

BIG money waiting for people with ideas for new inventions, improvements, novelties! Thousands of manufacturers looking for new products to meet hundreds of post-war demands. YOU can cash in—if you KNOW which inventions are really needed!

It's often the *littlest* things that make the *biggest* money! The rubber pencil tip, ordinary paper clip, clamp fruit-jar top made fortunes for their inventors. The Kiddie Kar brought a cool million. A 70-year-old grandmother made $350,000 with an overall buckle idea.

This Book Will Get You Started

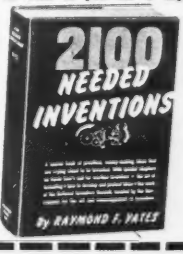
Don't waste time and work on something nobody wants! The big secret is in *knowing WHAT to invent*! That's just what this book gives you. Its author, Raymond F. Yates, noted science editor and inventor, lists and describes over 2100 PRACTICAL, money-making ideas that are crying aloud to be invented!

These 2100 needed inventions are the things *most needed* and *surest to make money* in EVERY field. For quick reference, you get them under 34 different headings: Electrical, Radio, Automotive, Agricultural, Mechanical, Building, Household, Clothing, Food, Toys, Time-Savers, etc., etc.

This book ALSO tells how to think inventively; how to PROTECT your ideas; how to develop an invention STEP-BY-STEP; the most needed inventions in *everyday* life, etc.

FREE EXAMINATION OFFER

See for yourself what this amazing book can do for you. It doesn't cost a penny to find out! Simply mail coupon below without money—now. The book will be sent to you for 5 days' FREE examination. If you're not convinced that it's jam-packed with money-making ideas for YOU, return it in 5 days, pay nothing. Otherwise send only $2.50, plus few cents actual postage, as payment in full.



Would YOU like a slice of the $280,000,000 in royalties that is paid out to American inventors every year? Then you owe it to yourself to get started with this book NOW! Don't break your heart working on things that there's no eagerly-waiting market for! Any ONE of the 2100 "self-starting" ideas fully described in this great book will bring somebody a fortune—and it may as well be YOU! So mail coupon at once! **WILFRED FUNK, Inc., Publishers, Dept. T159, 227 East 44 Street, New York 17, N. Y.**

FREE 5-DAY EXAMINATION

WILFRED FUNK, Inc., Publishers, Dept. T159
227 East 44 Street, New York 17, N. Y.

Please send me 2100 NEEDED INVENTIONS for FREE EXAMINATION. If I keep the book I will send you $2.50 plus few cents actual postage. Otherwise I will return it within 5 days, without further obligation.

Name .....

Address .....

City ..... Zone No. (if any) .... State .....

☐ Check here if enclosing $2.50 WITH this coupon, and we will pay all postage charges. Same 5-day return privilege, for full refund, applies. (Canadian Orders—25c extra for carrying charges. Only U. S. currency accepted.)

MADE $14 PER DAY
While Still Learning

"By the time I finished half your course, I was making $14.00 per day. I have made enough on the side to more than pay for the course—"
T. E. H.—West Virginia

LEARN ELECTRIC APPLIANCE REPAIR & SERVICE

We Teach How to Repair
Washing Machines
Vacuum Cleaners
Electric Ranges
Lamps, Motors, Irons, etc.
REFRIGERATION and House Wiring
At Home In Your Spare Time!

For a man handy with tools, and happiest when working with his hands, OPPORTUNITY is Wide Open Today in this great and growing field. Everyone is a customer for the man trained to service electric appliances.

OPEN YOUR OWN SHOP

Our practical HOME COURSE teaches you this business from A to Z—preparing you to take a well paid job or open your own shop. You can actually start in your basement or garage with the tools and Tester I send you . . . before finishing.

I Include An **ELECTRICAL APPLIANCE TESTER** A Big Kit of Tools at **NO EXTRA COST**

MAIL THIS COUPON *for* FREE BOOK

PACIFIC TRAINING SCHOOL
7217 So. Broadway, Dept. M-89, Los Angeles 3, Calif.

Dear Sirs: Please send me, without obligation, your free booklet and complete details.

Name .....

Address .....

City ..... *State* .....

HIGH PAY JOBS FOR MEN WHO QUALIFY IN DIESEL

ASSURE YOUR FUTURE. Steady, big pay jobs await men qualified in Diesel, Tractor and Heavy Equipment. Can you take advantage of Diesel job and advancement opportunities in this fast-growing field?

COMPLETE DIESEL COURSE AVAILABLE. If you are ambitious and want to get ahead in this lucrative field, you'll want to know about the complete training in Diesel provided by Interstate. Trains you at home in spare time. Does not interfere with your present job. Covers all phases of operation. Up to the minute. Revised regularly to cover new developments. Free placement advisory service.

YOU OWE IT TO YOURSELF to investigate I.T.S. home Diesel training. Thousands of students agree it has helped them to better jobs . . . better pay. It can do the same for you!

SEND FOR *FREE* BOOK TODAY! We'll gladly send you our big 24-page book *"Getting Ahead In Diesel"* FREE! Paste coupon on penny card and mail to

INTERSTATE TRAINING SERVICE
4035 N. E. Sandy, Portland 13, Ore.
Please see that I receive FREE BOOK "Getting Ahead In Diesel":

Name ..... Age .....

Address .....

City ..... Zone ..... State J4

MOTORIZE ANY HOUSEHOLD SEWING MACHINE

ANYONE CAN INSTALL IT

Make your old foot-operated machine do the work of a $100 electric sewing machine. Eliminates 75% of the work of sewing. Complete set consists of **Motor** and **Bracket** (Universal AC or DC 60 cycle, 115 volts); **Belt**—long wear rubber; **Pulley**—rubber grooved, steel hubbed, and new type variable speed **Foot Control.** Send check or money order today.

only $15.00 POSTPAID

SUNSHINE MFG. CO., DEPT. MI-9
614 North 3rd St. St. Louis, 3, Mo.

MEN and WOMEN Learn WORLD TRADE

Buy and sell world-wide without capital. Travel abroad if desired. Men or women! Your own business — *profits unlimited.* Export manager salaries to $10,000 a year. Practical, low cost home study course teaches you quickly in spare time. No previous special experience or schooling needed. World Trade Certificate awarded. Write today for FREE DETAILS. State if veteran. Airmail reaches us overnight. THE MELLINGER CO., Exporters-Importers, 1422-AY Westwood, Los Angeles 24, Calif.

make your own Gems 29.50 F.O.B.

All necessary lapidary equipment is furnished, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt, for only $29.50, f.o.b., Burlington, Wisconsin. Write today for information and literature.

B&I MANUFACTURING CO.
Dept. E, Burlington, Wis.

MAKE $25

selling 50 boxes 21 for $1 Xmas Cards. Also with name on 50 and 25 for $1. Napkins, coasters and stationery. Complete line. It costs nothing to try. Send for samples & selling plan on approval.

MERIT 370 PLANE ST., DEPT. N NEWARK 2, NEW JERSEY

ELECTRIC EYE

Assemble a multi-purpose electronic light-sensitive instrument from a complete set of parts including tubes and steel case and sensitivity control. This unit can be used to open garage doors, count people, control illumination, etc., for home and business. Only soldering iron and pliers necessary. Detailed instructions included. Order now. Send cash, money order for $9.95. C.O.D.'s accepted.

GELBROOK PRODUCTS
9508 QUEENS BLVD. DEPT. 95 REGO PARK, N. Y.

FOR BIG MEN ONLY!

QUALITY SHOES IN SIZES 10 TO 16

We specialize in large sizes only—sizes 10 to 16; widths: AA to EEE. Wing Tips, Loafers, Moccasins, Dress Oxfords, High Dress Shoes, Work Shoes, Sox. Styling specially designed for large sizes. Satisfaction guaranteed. FREE Catalog.

Write for FREE Catalog

KING-SIZE, Inc.
666 Brockton, Mass.

EARN MORE

$ $ $ $ $

SEND FOR THIS *FREE* BOOK NOW!

● Increase your earning power. Become *thoroughly* trained in a well-paid profession. Without obligation, find out about the opportunities in Electrical, Mechanical, Plastics, Civil, Mining and other engineering fields. Our *free* 118-page handbook, lists details of home study courses, compiled by world authorities. See for yourself how you can soon earn more dollars. Write today, to: Canadian Institute of Science and Technology, Ltd., 459 Century Building, 412, 5th Street, N.W., Washington, D.C.

Special discounts for Veterans and Servicemen

MAIL THIS COUPON NOW

Canadian Institute of Science & Technology, Ltd., 459 Century Building, 412, 5th Street N.W., Washington, D.C.

Please forward free of cost or obligation of any kind your 118-page handbook "Engineering Opportunities".

Name ..... Age .....

Address .....

CANADIAN ENQUIRIES: 219 Bay Street, Toronto 1.

FREE 7 DAY TRIAL

How to Build a Better Home

Should You Build or Buy?

Stop DREAMING!

HERE is how, step-by-step. Everything you need. Hundreds of **complete** diagrams, all facts! **One** diagram can save you hundreds of dollars. How to build from plans to paint.

Get Started NOW

Here at Your Fingertips, the Secrets that Produce Fine Small Homes Completely Revealed by engineer. How to get started; deciding upon Home Ownership; how to select professional service; how to finance; how to pick building lot; how to plan the home; how to fill out contract documents; how to obtain good construction; masonry construction; footings for foundation walls, chimneys, piers; how to build basement; waterproofing; how to build fireplaces; grades of lumber; house framing methods and details; finish carpentry and millwork; insulation; sheet metal work, roofing, stucco, lath, plaster; how to paint and finish; tile work, electrical work, plumbing, heating; where to get stock plans; taxes, insurance, interest, maintenance, assessments; how to choose a bank, real estate dealer, contractor; locating lot, tax searches, comparative costs of different designs; prefabs, bungalows; list of usual mistakes; 300 other subjects!

List of 104 Free Publications for the Home Builder

Hundreds of Illustrations

Nothing like it before! One simple fact may repay you a HUNDRED times its small cost. A book you will refer to for YEARS to come! Beautifully bound, illustrated, large pages. Great building authorities say: "Best book on subject" . . . "excellent piece of work" . . . "worth 10 times the price." THOUSANDS **DELIGHTED PURCHASERS!** We are so sure this is the book you have been waiting for that we make you this amazing offer:

SEND NO MONEY! JUST FILL OUT AND MAIL THE COUPON BELOW—NOW

The Westport Publishing Company, Books of Merit, Dept. MX9 Westport, Conn.

Please send me, for one week's FREE EXAMINATION, a copy of "How to Build a Better Home." After 7 days I will either return this book and owe you nothing, or I will keep it and send you $3.98 (plus shipping charges).

Name ..... Age .....
(please print)

Address .....

City and Zone ..... State .....

☐ Save postage. Check here if you enclose full payment of $3.98 (check or money order) WITH coupon. WE will then pay shipping charges. If not thrilled with book, return it and we will refund your money by AIRMAIL! Foreign Shipment $4.50, cash only.

Let Us Teach YOU to Write

Read these experiences: WAITER SELLS NOVEL, a Magazine Institute student, working as a waiter, recently signed a contract for his first novel, with an advance of over $1,000—after completing only half the assignments of the course. HOUSEWIFE GETS $300 CHECK, a Virginia housewife, after working a few months, in spare time, with the Magazine Institute, sold her first story to a woman's magazine for $300. (Experiences taken from Magazine Institute files.)

SEND FOR FREE CATALOG TODAY. The free catalog, offering a detailed description of the Magazine Institute plan of modern help to writers, telling about opportunities for writers, and identifying the writers and editors who serve as instructors, will be sent on request. Inquirers will also receive "The Best Job in the World," listing unsolicited testimonials from successful graduates. COURSE APPROVED FOR VETERANS' TRAINING.

THE MAGAZINE INSTITUTE, INC., DEPT. 959, 50 ROCKEFELLER PLAZA, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

LEARN MEAT CUTTING

EASILY—QUICKLY
At Home—In Spare Time

The steady, dependable trade of Meat Cutting taught easily, quickly by improved HOME METHOD. National School, established over 25 years, has organized its famous "Learn By Doing" Classroom, Cutting room and Retail Market training system into sound, practical HOME STUDY form.

Now, by the miracle of this EXTENSION TRAINING you can prepare in Your Spare Time At Home, for a better job, bigger responsibilities or success and security in a store of your own. Remember, PEOPLE MUST EAT!

Buying, cutting, percentage, pricing, advertising, selling—a complete meat education. For beginner or men with experience. Thousands of successful graduates. Send coupon for FREE Bulletin NOW!

MAIL THIS COUPON TODAY FOR FREE BULLETIN

National School of Meat Cutting, Dept. ME-51, Toledo 4, Ohio

Send me your FREE Bulletin on Meat Cutting and Meat Merchandising. No obligation. No salesman will call.

Name .....

Street .....

City ..... State .....

Listen to this Record!

SPEAK SPANISH

FRENCH, GERMAN, OR ITALIAN

Big opportunities awaiting Americans who speak Spanish. Learn as a child learns—"by listening" to these brand-new CORTINA recordings.

COUNT CORTINA

Only 15 Minutes a Day

Learn to speak Spanish like a Native! The **Cortinaphone** Method **famous for 65 years** teaches you—right in your own home, relaxed and at ease. Thousands have found it the most fascinating, most satisfactory method. Here is the quick, easy way to learn Spanish for **Pleasure and Business.** Investigate!

Spanish Course Available Under G. I. BILL OF RIGHTS

Sent on 5 Days' Approval

"The Cortina Short-Cut" tells just what you want to know. Interesting. It's free! Get it!

Write today—NOW!

CORTINA ACADEMY (Language Specialists for 65 Years)
Suite 279, 105 West 40th St., New York 18, N. Y.

Please send me—without obligation—your free booklet. I am interested in (mark):

☐ SPANISH ☐ FRENCH ☐ ITALIAN ☐ GERMAN

Name .....

Address .....

☐ Check here if you are a **Veteran**

DINA-MITE MIDGET RADIO

AMAZING POWER!

- **OVER 1,000 MILE RANGE**
- **BRAND-NEW CIRCUIT DESIGN**
- **NEW TINY ELECTRONIC TUBE**
- **POWERED BY MIDGET BATTERY**
- **RADIO BEGINNERS PICTURE DIAGRAM**

SEND ONLY $1.00 pay postman $2.00 plus delivery fee on arrival or send Only $3.99 for Post Paid delivery. DINA-MITE is a real cigarette package size radio with a tiny, powerful, electronic tube and is GUARANTEED to out-perform many radios several times its size. DINA-MITE has a brilliant red chassis, new Dina-Coil Tuning, new midget resistors and condensers and precision finished parts. DINA-MITE is complete, including tiny electronic tube, and ready to wire as shown. (All foreign orders $5.00 U. S. cash.)

ELECTRONIC RESEARCH LABORATORIES
1216 Park Row Bldg. Dept. 10 New York City 7

Amazing FOUNTAIN PEN GUN

Shoots Tear Gas 15 Feet

Fits Pocket or Purse... Guaranteed to stop man or beast

Complete Protection With Just a Flick of Your Finger

Here's quick, easy "finger-tip" protection. Shaped like a regular fountain pen, this pistol pen throws a powerful charge of tear gas 15 FEET! Cloud of gas spreads 4 to 6 feet. You can't miss. Just point pen like you point finger and release trigger. Ideal for home, office or car. May be clipped in pocket like pen. Loads like gun. Fires 38 Caliber S. & W. "Special" TEAR GAS cartridge. Will not kill. Renders mad dogs, robbers, etc., helpless. Can not harm user. Effective indoors or out. NOT SOLD TO MINORS or persons residing in state prohibiting sale of firearms. ONLY $7.50. Cartridges 5 for $2.50. Order TODAY!

SEND NO MONEY Just send name and address. Specify Pen. Cartridges or both. On arrival pay cost plus Express Shipping charges. Send cash with order, we pay express charges. Use 10 days, if not delighted return for money back. Order NOW!

DEFENDO PRODUCTS CO. Dept.490, 215 N. Michigan Ave. Chicago 1, Ill.

Make Your STOP LIGHT SHOUT!

AMAZING STOP LIGHT FLASHER!

Make Your Stop Light Flash 115 Times Per Min. A SENSATION! Automatic. Instant acting when foot brake applied. Attracts attention. Warns car behind. Non-Rusting. Dust, Oil, Vapor & Waterproof. Used by police & fire depts. Attach in 5 min. to any model car or truck. Approved by leading safety engineers.

FREE WITH ORDER. "HOW TO SAVE MONEY ON CAR 'Motoring Hints' BOOKLET". ACT NOW! If dealer can't supply send **$3.00** cash or M.O. We pay postage.

"STOP-IT" makes stop light flash 115 times per min.

MACCHI & CO.
927 Larkin St., Dept. B, San Francisco, Calif.
Dealers & Agents Wanted.

BUSINESS OPPORTUNITIES

YOU'LL FIND **PLENTY** LOOK ON 46

NOW IT'S FUN! *TO SHINE YOUR SHOES*

With the New "SHINE-BOY" Shoe Holder

Save those dimes and quarters and have quick, easy shines at home. The whole family will enjoy this handy new invention.

Easily installed; removes from bracket when not in use · Self-locking adjustment to shoe size—men's, women's, children's · Sturdy steel construction, holds shoes absolutely firm · Nothing more useful—you'll treasure it for years.

DEALER INQUIRIES INVITED

SEND NO MONEY · Fill In · Mail Today · We send C.O.D.

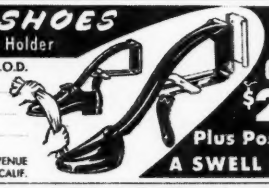
NAME .....

ADDRESS .....

..... HOW MANY? .....

(WE PAY C.O.D. CHARGES ON PREPAID ORDERS)

A. L. WILSON CO. 6324 PRIMROSE AVENUE HOLLYWOOD 28, CALIF.



ONLY $2.75 Plus Postage

A SWELL GIFT

LEARN THE JEWELRY BUSINESS

Send for Free 24 Page Photo Book

WORLD'S LARGEST WATCHMAKING SCHOOL

Highly respected profitable courses in watchmaking, jewelry, and clock repairing; engraving; chronograph and electronic watch-timing machine, etc. (We guarantee bonded graduates.)

Excellent for certain disabled persons.

Enroll anytime; day and evening classes.

Nationally accredited by United Horological Association and National Council of Technical Schools, Washington.

APPROVED FOR VETERANS TRAINING

WESTERN PENNSYLVANIA HOROLOGICAL INSTITUTE, INC.

ESTABLISHED 1936

WRITE DEPT. 25, DOWNTOWN OFFICE, 4 SMITHFIELD ST., PITTSBURGH, PA.

MI CLASSIFIED ADVERTISEMENTS

- Business Opportunities
- Profitable Sidelines
- Educational Courses
- Homecraft Supplies
- Stamps and Collections
- Crafts and Hobbies
- Automotive Supplies
- Plastic Crafts
- Photo Equipment
- Miscellaneous Services

Your advertisement can reach this mail-buying audience of nearly 2 million readers for only 40c per word . . . payable in advance . . . minimum 10 words. Copy to be inserted in Nov. issue must be in the office Sept. 3rd. Mail to MECHANIX ILLUSTRATED, 67 W. 44th St., New York 18, N. Y.
Word count: Zone number free. Figure one word: Name of state (New Jersey); name of city (New York); sets of characters as in key (14-D); also abbreviations as 35MM, 8x10, A.D. A.C.

ADVERTISING SERVICE & AGENCIES

ADVERTISE: 24 WORDS, 40 Newspapers $3.50. Lists Free. Advertising Bureau, 229-B Dixson, Uniontown, Penna.

VALUABLE! NAMES—Addresses—Songwriters—Details—Popular, Box 927, Atlanta, Ga.

24 WORDS IN 64 weeklies $4.96. J. Darnell, 730 Hays, Jackson, Tenn.

AGENTS WANTED

MAKE MONEY fast! Sell Christmas cards to friends, neighbors, others. Big variety Etchings, Religious, 50 for $1.00, Wrappings, Stationery. New $1.25 line "Little Ones," Flower Box, Plastic Frosteds, Saints 'n' Sinners. Special offers, bonus. Fund raising opportunity for individuals, clubs, churches, schools. Mail postal today for feature 21 card $1.00 Christmas assortment on approval. Hedenkamp, 343 Broadway, Dept. S-54, New York 13.

NEW EXTRA money plan. Make up to 100% profit—without experience—showing Christmas, Everyday Card assortments, Wrappings, Stationery, Coasters, Unusual, Attractive. Bonus. Special offers. Send for free samples 30 different Name Imprinted Christmas Cards, 50 for $1.00, 25 for $1.00 and $2.00, Stationery, Coasters. Christmas, Everyday assortments on approval. Thomas Terry Studios, 90 Union Ave., Westfield, Mass.

BIG, EASY profits to 100% selling new, novel Christmas Card, Gift Wrapping, Panorama, Christmas Carol assortments. Bonus. Special offers. Request free samples 50 for $1.00 Personals, Silver Imprint line, Name Imprinted and Floral Stationery and Feature Christmas samples on approval. New England Art Publishers, North Abington 256, Mass.

QUICK CASH. Sell friends wonder value name imprinted Christmas Cards 50 for $1.00 up to 25 for $2.50. 43 sensational money makers. Up to 100% profit. Bonus. Special offers. Write for 9 Free self-selling sample portfolios name imprinted Christmas Cards and Stationery: Rainbow Greeting Card Co., 38 East 1st St., Dept. 25-A, New York.

AT LAST! Something new and sensational in Christmas Cards. Gorgeous satin, velour designs never before offered. Amazing value! Gets orders fast. Name-imprinted Christmas Cards, 50 for $1 up. Big Profits. 30 other assortments 60c to $1. Imprinted Stationery. Samples on Approval. Puro Co., 2801 Locust, Dept. 864-L, St. Louis, Mo.

BIG MONEY. Sell friends, others, exclusive Christmas card assortments unobtainable elsewhere. Profits to 100%. Bonus. Request free samples exclusive 50 and 25 for $1.00. Name Imprinted Christmas Cards with Christmas and Everyday assortments on approval. Regal Greetings, Dept. ML-3, Hazel Park, Mich.

CHRISTMAS CARD agents! Exclusive, new plastic, sachet, panorama and carols assortments. Five leading 21 card $1.00 feature assortments. Six portfolios of personal cards. All this plus America's fastest imprint service. Free samples. Elmcraft Card Co., 5950 So. Western, Chicago 36, Ill.

$25 YOURS FOR selling only Fifty $1.00 boxes, new exclusive different Christmas and All-Occasion cards; also extra cash bonuses. Send for Champion Cheerio 21-card box on approval. Free samples 6 new personal groups and stationery. Write Today. Dept. 47, Pen-Brush, 154 Nassau St., New York 7.

$5.00 CASH ADVANCE commission every sale. 38-piece "Lady Ann" silverplate table service. Guaranteed quality, value bring sales galore. Sells for only $14.95, including tarnish-resistant chest. Bonus premiums. Write for Free Outfit. Dexter Silver Co., 303 Fifth Ave., Dept. MI-820, New York.

AMAZING OFFER—$40 is yours for selling only 50 boxes, each containing 25 new, entirely different Deluxe Christmas cards with or without name imprinted. Also 50 for $1.00. Free samples. Other boxes on approval. Write today. It costs nothing to try. Cheerful Card Co., 418 White Plains, N. Y.

EARN $100 A week and more selling nationally advertised aluminumware, silverware, pressure cookers, canners and gift items. No investment required. Simply take orders, collect commissions, we do the rest. Complete sales kit free. Write Ury Co., Dept. 45C, 222-4th Ave., New York 3.

CHRISTMAS CARDS. Earn $3 an hour. Take orders galore from friends. America's Fastest Selling 21 Christmas Folder Assortment. Smart, Distinctive! Costs 50c. Sells $1. A complete line. Samples on approval. No investment. Sunshine Art, Dept. M8-9, 115 Fulton St., New York 8, N. Y.

EARN $25 A day and more selling nationally advertised aluminumware, silverware, pressure cookers and jewelry direct to consumer. It is simple, let us show you how to make big profits with no investment. Write Colonial Products, Dept. H-9, 30 Ormsbee Avenue, Providence, R. I.

MAKE MORE money selling personal initialed individualized belts, buckles, cap badges, tie holders, name plates. 2,000 emblems to choose. Big profits, whole or part time. Write today—special outfit offer. Hookfast Specialties, Box 1425, Dept. 4, Providence, R. I.

CALL ON friends with sensational Christmas Cards in handy assortments. Sell for $1.00. Profit up to 50c. Also popular-priced Personal Christmas Cards, Everyday assortments, Stationery, Imported Napkins. Samples on approval. Wallace Brown, Dept. J-4, New York 10, N. Y.

EARN $25 A day and more selling nationally advertised aluminumware, silverware, pressure cookers and jewelry. It is simple, let us show you how to make big profits with no investment. Write Continental Products, Dept. H-9, 30 Ormsbee Avenue, Providence, R. I.

BARGAINS—SAVE up to 50%. Hosiery, Lingerie, Toys, Blades, Spices, Specialties, Carded Goods, Dry Goods, Toiletries, Stationery, Jewelry, Notions, Soaps, etc. Postcard brings Free catalog. Reliable Jobbers, 930 W. Roosevelt, Dept. C-9, Chicago 8.

EXCELLENT SIDELINE for printing and advertising salesmen. Decalcomania name plates in small quantities. Great demand. Also, make money with our line of Automobile Initials and Sign Letters. Free Samples. "Halco," XL-Roxbury, Boston 19, Mass.

EASY MONEY. Sell 50 all embossed Christmas Cards for $1.00 with name imprinted. Sensational new 21 card Christmas assortment sent on approval and free samples of all name imprinted Christmas cards. Lorain Art Studios, Dept. M30, Vermilion, Ohio.

SILVER PLATING Liquid (NuSilver). Anyone can apply with cloth. Gives genuine gleaming silver finish. Renews silverplated ware, articles, pieces. Silverplates brass, copper. Distributors, salesmen, agents wanted. NuProcess Products, Aurora, Ill.

CHRISTMAS CARDS. Earn $5.00 with every ten 21 card $1.00 boxes you sell. Also new Plastic Cards, Personalized Cards and Stationery. Note Paper and Wrappings. Send for samples today. Howard P. Ellis, Dept. MI-8, Pitman, N. J.

FREE SAMPLE! Big profit opportunity with amazing Glow-in-the-Dark House Numbers, Switch Plates, Pictures, Decals, Religious Articles. Represent large manufacturer. Madison Mills, 303 Fourth Avenue, New York, N. Y.

MAKE SENSATIONAL Profits! New, sell-on-sight Plastic Line: Tablecloths, Aprons; many other splendid fast-selling items, novelties. Postal brings free details, special deals. Hurry! Royalty, Box J-748, Passaic, N. J.

AGENTS WANTED for our coin operated amusement machines in every town and community. Sell to clubs and homes; or start a route. Webb Distributing Co., Dept. M-12, 6 S. Kedzie Ave., Chicago 12, Ill.

WOULD YOU pay 3%—first $350 made? Color-illustrated book "505 Odd Successful Enterprises" free! Proven! Work at home, office. Expect something odd! Pacific, Oceanside, Calif.

EARN EXTRA money showing friends Luxurious Christmas Cards, Stationery, Wrappings. Free catalog, details. Atlantic Card, 3535-C Reisterstown Road, Baltimore 15, Md.

MEXICAN FEATHER pictures. Unusual novelty. $1.00 (stamps) brings $2.00 worth samples, details. Refunded if unsatisfied. Aztec Art-M, Apartado 762, Mexico City.

ALL KINDS American, Swiss watches, new and used; retail $3.65—$345.00; profit 33⅓% up; show our catalogue, get orders. Brookins, B-1975DJ, Little Rock, Ark.

"FORTIFY THE FUTURE." Start own business; home, office. Booklet describing "Collection of 137 Tested Plans" free. Elite Co., 220-G Grand St., New York 13, N. Y.

SELL BOOKS by Mail. Mammoth Sales and Huge Profits. Everything furnished. 3c stamp brings complete details. Box 177, Madison Sq. Sta., New York 10.

A DRESS Yours with every 3 you order for yourself and family. Amazing new bonus plan. Everything Free. Harford Frocks, Dept. S9130, Cincinnati, Ohio.

SHINE SHOES without "Polish." New invention. Lightning seller. Shoes gleam like mirror. Samples sent on trial. Kristee 126, Akron, Ohio.

INFORMATION—WHOLESALE supply sources. Moneymaking plans. Increase your income! Write Reynard Research, Smithfield 3, Ohio.

SELL NEW, used clothing from home, auto, store. Wholesale catalog Free. Calumet Sales, 4719 Kennedy Ave., East Chicago, Ind.

RAISED WOOD sign letters all sizes. Factory prices. Send 10c for catalog. Sign Letter Distributors, P.O. Box 101, Mineola, N. Y.

WINDOW SIGN letters, "Stickon," big profit, easily applied, not decals. Sample free. Artistic, 74 Edmund Pl., Detroit.

GET 400 MONEY Making Ideas. Formulas. Plans. Schemes. Folio Free. Formico-Spec., Box 572, Dayton, Ohio.

HOUSEHOLD SPECIALTY, profitable fast seller. Flinson, Box 4333-BB, Kansas City, Mo.

SELL GOLD embossed monogram stationery. Sample free. Dunbars, Sanford, Fla.

NEW FAST Selling Item. P.O. Box 3631, Highland Park 3, Mich.

AUTHORS' SERVICE

NEW WRITERS needed to re-write ideas in newspapers, magazines and books. Splendid opportunity to "break into" fascinating writing field. May bring you up to $5.00 per hour spare time. Experience unnecessary. Write today for Free Details. No obligation. Postcard will do. Comfort Writer's Service, Dept. 33, 200 S. 7th St., St. Louis 2, Mo.

I WANT new writers to cash hundreds of checks for $1 to $100, offered each month. The easiest way to write for pay. No previous experience necessary. Send for free details. No obligation. Saunders M. Cummings, 467-B Independence Bldg., Colorado Springs, Colo.

EXPERIENCED LITERARY ghost will have time for one more booklength this year. Fiction or fact; rewrite or full ghosting. Consultation without obligation. E. Jervis Bloomfield, Gabriola Island, British Columbia.

AVIATION

AIRCRAFT AND Engine Mechanic's Manual (Exams) by Zweng $3.00; Flight Engineer $4.00; Link Instructor $4.00; Astro Compass $7.50; Fairchild Sextant $12.50; Weem's Plotter $2.00; Zweng Aviation Dictionary $6.00. (Free Catalog.) Pan American Navigation Service, 12021-M Ventura Bvd., N. Hollywood, Calif.

"ROSS" GUARANTEED questionnaires for all C.A.A. ratings. Ross Aeronautical Services, Dept. 1-A, Box 1794, Tulsa, Okla.

BUILD, FLY bullet raceplane. Fast, light monoplane. Blueprints $2.00. Corberaft, 80 Maxwell, Rochester 11, N. Y.

BARGAINS

VAPOR PROOF dome light $2.50. Violet Ray cockpit light $3.00. 6V, ½ hp reversible motor, switch and 3 gears $5.00. 4 assorted toggle switches $1.00. 4 assorted micro switches $1.00. Abbotts, 1427½ W. Douglas, Wichita 12, Kan.

CLOSING OUT:—400 Antique Firearms; 35,000 Indian Relics, Coins, Confederate Money, Cartridges, Swords, Fossils, Bullet Molds, Flintlocks, Carbines. Illustrated catalog 25c. Heike, Wenona 8, Ill.

WRITE FOR complete list of used marine motors. Many bargains. All units factory rebuilt and guaranteed. Also many lighting plant bargains. Universal Motor Company, 462 Universal Drive, Oshkosh, Wis.

YOUR DOLLAR brings Windy, Indian Chief Coconut Head. Sensational! Or send dollar for magnificent giant conch shell, from exotic Bahama shores. Southern Importers, Box 1685, Miami 35, Fla.

SEE OUR ad under motorscooters for midget car bargains. Midget Motors Directory, Athens, Ohio.

"84 CARD TRICKS," 25c! Free Book Catalogs! Hirsch, Spring Valley 1, N. Y.

SALESMEN WANTED

BRAND NEW! Revolutionary Products!! Salesmen make $10,000 yearly selling one complete lighting line. "Neo-Glo" fluorescent changeable message sign replacing neon, "All-Lite" table lamp using upright fluorescent tubes, spectacular "Circline" fixtures using circular tube. Verticals, dual-rays, pin-up lamps, a complete line of fluorescent and incandescent fixtures covering every commercial, industrial, residential need. A triple sales plan insures your success whether you choose selling dealers, direct, straight commission or distributorship on our capital. Get set now with our growing progressive organization. To get you started, we will send you a beautifully illustrated catalog showing over 200 profitable, sales-tested styles and models. Order blanks, sales helps, everything needed to start at once included. It costs you nothing. Rush name quickly—today—and start making real money. Rose Company, 539MM South Franklin, Chicago, Ill.

ADVERTISING BOOK Matches—Cash in on political campaigns—sell Union Label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash Commissions. Superior Match Co., Dept. F98, 7530 Greenwood, Chicago.

BIG MONEY Quickly and Easily taking orders for complete line Personalized Initialed Buckles, Belts, Cap Badges, 2,000 Emblems. Fast repeats. Write today. Hook-Fast Company, Box 480-MI, Roanoke, Va.

I'LL PUT a "Shoe Store Business" in your pocket! Nation's Leader trains you to make Big Money! Fit men, women. Free Sample Outfit—Write Today! Consolidated Shoe System, Dept. S-141, Chippewa Falls, Wis.

SALESMEN. EARN $100.00 weekly, selling only six pair shoes daily. Commission and bonus. Wide variety for men, women, children. No investment. Experience unnecessary. Tanners Shoes, 308 Boston, Mass.

BIG MONEY Taking Orders; Shirts, ties, sox, pants, jackets, sweaters, shoes, uniforms, etc. Sales equipment Free. Experience unnecessary. Nimrod, 4922-AR Lincoln, Chicago.

AMAZING—PLASTIC Magnetic Top. Sample Postpaid 30c. Beautiful Plastic Tooth Picks—30c Doz. Smith's, 2652 Laurel Canyon Blvd., Hollywood 46, Calif.

SALESMEN CALLING on stores. Non-competitive item every store needs. Excellent profits. Brinco, Box 62, Lake Station, Minneapolis 8, Minn.

BOYS! EARN over $2 Hour! Sell brass name plates for houses. Write Dept. 3, National, 214 Summer, Boston, Mass.

BUSINESS OPPORTUNITIES

NEW METHOD of casting Metal Toys and Novelties opens opportunity for full or spare time business and profits. Latest 1948 scale model Autos, original Ashtrays, Savings Banks, Water Pistols, etc., easily cast with bronze moulds. Big wholesale and chain store Xmas orders now being placed keep manufacturers busy. No experience or special place necessary. Write for details and illustrations of patterns needed. Metal Cast Products Co., Dept. 2, 1696 Boston Road, New York 60, N. Y.

COIN MACHINES earn big money! Machines at $10.50 earn as high as $5.00 weekly profit. Place machines in stores, hotels, filling stations, etc., and your income starts immediately. Routes can be operated in spare or full time with no experience needed. We'll tell you how and send you a catalogue describing our nut, candy, gum and postage vendors; also scales, amusement games, etc. Write immediately to Parkway Machine Corporation, Dept. 15, 623 W. North Avenue, Baltimore 17, Md.

BRONZED BABY shoe mountings and supplies. All metal bronze bookends, picture frames, ashtrays, etc. Onyx ashtrays, desk sets, plaques. Hardening solution. 30-amp plating rectifiers with powerstat control, $85.00. Geared motors for agitation, $20.00. Lead lined tanks. Write for list. Hollywood Bronze Supply, Dept. 112, 1770 N. Vermont, Hollywood 27, Calif.

RUBBER! WHITE liquid rubber! America's finest flexible molding rubber! New! Extra heavy viscosity! Quick drying! Ideal for home, classroom, or industry. Only $7.95 per gallon, $2.95 per quart, and $1.00 per half-pint sample. Parcel post prepaid! Plastercraft Supply Company, 3051 St. Clair Avenue, Cleveland 14, Ohio.

SPECIALTY MANUFACTURING, the big money business that can be operated anywhere, start on a very small capital; we supply dependable formulas and complete instructions; get interesting Free booklet, "Moneymaking Opportunities in Specialty Manufacturing." Howard Robinson, Ph.G., 1300-D South Ohio Street, Sedalia, Mo.

BRUSH PLATING Outfits connect to a battery. No tanks necessary. Almost as simple as painting. Your opportunity to make good income plating, autoparts, bathroom fixtures, reflectors, mirrors. Get free proof and particulars that put you in a paying business of your own. Gunmetal Co., Ave. A, Decatur, Ill.

MORE MONEY—easier! Revolutionary new method makes public bookkeeping an easy interesting way to earn $5.00 to $10.00 hourly, full or spare time. Simple, complete instructions! Start earning after 30 days. Success-revealing information free! Auditax Systems, 4515K Sunset, Los Angeles 27.

YOU MAKE them. We sell them! New liquid plastic makes many items. Terrific demand! Earn minimum of $50.00 per week at home. No experience or machinery required. We supply raw materials and instruction. Write Travaco Laboratories, P.O. Box 1883, Boston 5, Mass.

FINE BUSINESS. Make Hollywood style cement pottery, birdbaths, garden articles . . . without moulds. Chemical coloring. Amazing designs. Dime brings pictures, sample. Hollywood Cementcraft, 8527-F Wonderland, Hollywood 46, Calif.

USE YOUR home as magazine subscription station. Represent all magazines. Liberal commissions. We supply everything. Big Christmas business ahead. Catalog, full details, free. McGregor Magazine Agency, Dept. 21, Mount Morris, Ill.

MAKE MONEY making new greaseless doughnuts at home with electric machine. Wholesale to grocers, drug stores, cafes, hamburger shops. Send for free recipes and plans. Irving Ray Company, 3605 South 15 Ave., Minneapolis 7, Minn.

COLORGLAZED CONCRETE pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leakseaing. Money-making projects. Booklet, details free. Men only. National Pottery, Grand Rapids, Minnesota.

LIQUID MARBLE—make in any color. Soundproof Plastic Flooring. Flexible Molds. Cast novelties, plaques, statuary. Big Money—your own business. Catalog Free. Write—Bing Products, E9A Broad Street, Boston 10, Mass.

TRADE MAGAZINES help you get ahead. Latest copies every trade, business or interest for only few cents each. Write today for Free pricelist. Commercial Engraving Publishing Co.; 34W North Ritter, Indianapolis 19, Ind.

BIG BARGAINS for big profits. Over 100 sensational wholesale values. Men's used suits $2, pants 35c, topcoats $1.25, overcoats $2, shoes 20c. Experience unnecessary. Free catalog. Superior, 1250-C Jefferson, Chicago 7.

READ "ADVANCE"—Voice of Mail Order. Offers Personal Guidance, Sources of Supply, Benefits, etc. Published Monthly. Sample Copy, 25c. Yearly Subscription, $2.00. Advance Publishing Co., Suite 410, 313 E. 21 St., N. Y. C.

WANTED—MEN who studied law, politics, sociology, to investigate Progressive Humanology—the science which could emancipate humanity from wars, poverty, crimes, etc. David Ornsteen, Box 985, Los Angeles 53.

WOULD YOU pay 3%—first $350 made? Color-illustrated book "505 Odd Successful Enterprises" free! Some offer occasional "day off." Work home. Expect something odd! Pacific, Oceanside, Calif.

A FACTORY in your home garage! Mfg. and sales rights, mechanics' waterless hand cleaner. $500-$800 monthly. No special equipment necessary. Western Aircraft Mfg., Dept. H, Los Angeles 6, Calif.

START HOME business making statuettes, plaques, artificial marble flooring, liquid marble, flexible molds, metallizing baby shoes. Amazing profits. Folder free. Creative, 236-A, Winnetka, Ill.

PINBALL MACHINE operators make big money regularly. We supply good reconditioned machines at only a fraction of the cost of new machines. Write Randolph Machine Co., Rock Mills, Ala.

BUYERS WANTED for plaster novelties and Religious statuary. Painted—unpainted. Retail—wholesale. Write today for free information. Bing Products, 88-X16E Broad, Boston 10, Mass.

LEARN PIANO Tuning, Repairing, at home. Tremendous field! Piano parts, tools furnished. Established 1935. Empire School of Piano Tuning, 606 East University Ave., Champaign, Ill.

MAKE $5.00 PER hour full or spare time right at home Preserving Baby Shoes in real Bronze, Gold, Silver and Pearl. Full details Free. Kiktavi Co., 2111C Manchester Blvd., L.A. 44.

BEGINNERS—STOP experimenting! New booklet, "Principles Of Mail Selling," will teach you the professional way. Only 25c postpaid. Publishers, Box 1302-B9, Detroit 31.

ALL KINDS American, Swiss watches, new and used; retail $3.65—$345.00; profit 33⅓% up; show our catalogue, get orders. Brookings, B-DJ1975, Little Rock, Ark.

EXTRA DOLLARS or a good living with your typewriter. New, exclusive opportunity. Never before offered. Get details now. Schroder. 221 Bush, Covington 4, Ky.

LOCKSMITHING SECRETS—key fitting, lock opening, repairing, prices to charge, supply sources, illustrated book only $1.00. Wechslor. 7 W. 36, New York City.

OPERATE PROFITABLE mail order business. Splendid Opportunity. For details write Ferrell Publishers, 5980 W. 74th Street, Los Angeles 45, Calif.

START BUSINESS of your own with small investment. Send today for 24 money makers only 25c. David Singer, 555 Belmont Avenue, Brooklyn 7, N. Y.

OPERATE PROFITABLE Mail Order Business. Splendid Opportunity. For Details Write V. M. McKinley, 76 Ave. "A," Battle Creek 30, Mich.

EARN UP to $520 month part or full time keeping books for small firms. Simplified System. Write Tax-Saver System, Dept. E, Ft. Worth, Tex.

AFRICAN VIOLETS. Grow and ship 88 varieties, Soil, Plantfood, leaves. Send For List, Prices Reduced. Walter W. McEver. Gainesville, Ga.

MAIL ORDER Offers Increased Income, Independence. Unlimited Possibilities; Free Literature. Manhattan House, 126-N Lexington, New York 16.

YOUR OWN mail order business at home. New, illustrated course. Free booklet. Armstrong Schools, 7219 South Broadway, Los Angeles 3.

LIQUID RUBBER for making flexible molds. Cast novelties. Sample bottle 25c. Free literature. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

MAILING POSTCARDS selling repeat merchandise is profitable. Everything supplied. Details free. Gordin Publishers, Box 23, Pawtucket, R. I.

BE YOUR Own Boss. Metallize baby shoes at home spare time; your own business. H. Schwieger, 8404 W. Chestnut, Wauwatosa 13, Wis.

SELL GREETING Cards, Pictures, Signs, Novelties, Books! Large Profits! Catalog Free! Elfco, 434 North Wells Street, Chicago 10.

OFFICE SUPPLY selling by mail secures repeat business profits. Particulars free. Glenn Snyder, 5-D Spring, Beachwood, N. J.

START OWN Business—home, office; booklet describing "137 Business Plans" free. Elite Co., 220-G Grand Street, New York 13, N. Y.

METALIZE BABY SHOES and other nonmetallic articles. Fascinating work. Big profits. Shuplate, Box 1388, Lawton, Okla.

SELL BY mail! Ideas galore! Join Mail Selling Opportunities Club! Details free! C. Wehner, Box 142-B, Roxbury 19, Mass.

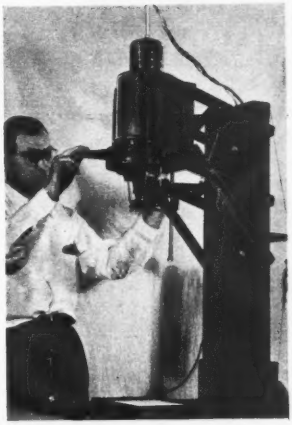
HOW AND where to obtain capital, small and large loans. Details sent free. Write today. Star Service, Wapakoneta, Ohio.

WIN SUCCESS—Security—in your own Mail Order Business. Particulars free. Foster, 10 Gibson Terrace, Connellsville, Penna.

NO SELLING, operate vendors, amazing profits, details free. Factory Silver-King Corp., 622 Diversey, Chicago, Ill.

OWN MIRROR Shop. Resilver Mirrors. Glass Sign Making. Electroplating. Supply Prices. John Sprinkle V33, Marion, Ind.

PARALLEL ARM ENLARGER



This enlarger uses the parallel arm system of suspension. Will take any negative from 35mm up to and including 4x5 in. It is designed to be built around your present camera, whether it is a 35mm Argus or a 4x5 Speed Graphic. For blueprint and descriptive text, send 50c to MI Reader Plan Service, Fawcett Building, Greenwich, Conn., and ask for Plan No. P-2.

"FIX CRACKED Batteries!" Easy! Big profits! Cement $1.00 can! Free details! Stevens, Grand Junction, Colorado.

BABY SHOE metallizing. New system assures success. Details free. Treasures Forever, 89-A Henry Ave., Lynn, Mass.

$25 WEEKLY WORKING two hours daily. No canvassing. No manufacturing. Lycke, Box 2471, Cleveland 12, Ohio.

MANUFACTURE CLEANERS — Flavors — Cosmetics—Polishes. Formula Catalog Free. Kemico, Parkridge 60, Ill.

400 MONEY PLANS. Ideas. Formulas. Tips. Success schemes. Folio Free. Formico Mo., Box 572, Dayton, Ohio.

ESTABLISH YOUR own business. Postal brings free folder. F. Attaway, Box 173, Station A, Atlanta, Ga.

INVESTIGATE MAIL Order Opportunities. Details Free. Moy's, 517—7th S.W., Washington 4, D. C.

SPIN ANGORA wool. Ideal home business. Descriptive circular free. House of Angora, Springfield, Ill.

WHOLESALE SOURCES 100,000 items 10c. Wilborn, 316-SM Judson Rives Bldg., Los Angeles 13.

SAWDUST. TURN it into cash. Six methods. Instructions 25c. Charles Co., 12-CY, Norwood, Ohio.

RECAST OLD batteries into new. Latest Achievements. Battery Laboratories, Minneapolis.

AGENT OR exclusive distributor for cigarette lighter mfg. Mac Gregor, Tahoe Valley 17, Calif.

MAKE MONEY new mail business, write today. American Letter, New Market 2, N. J.

OPERATE MAIL Order Business. Splendid Opportunity. Write A.C.R., Box 728, Dover, Del.

CO-PUBLISH FOR Profit, sample magazine and terms, 10c. C. Ritchie, Watertown, S. D.

INCOME FROM local information. No Selling. Neher Company, La Verne 13, Calif.

GET LOWEST Prices! Balloons—Combs—Novelties. Carleton House, Texas City, Tex.

50 DOLLAR MAKING Tips! 50c. Foster's, Box 2408, Oklahoma City 8.

BUSINESS SERVICE

OPEN TIME. All types of silk screen work, decals, posters, glass, wood, plastics, or what have you. Estimates cheerfully given. Lac-ed Decal, 59 E. Illinois St., Chicago 11, Ill.

CANDYMAKING

MEN — WOMEN — "Most Everybody Likes Candy." Learn to make delicious confections the Ragsdale Way. (Our 38th year.) Ragsdale Candies, D3, East Orange, N. J.

CARTOONING, SIGNPAINTING, DRAWING AIDS

HOW TO Make Money With Simple Cartoons"—a book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 359, Pleasant Hill, Ohio.

CARTOONING SELF-TAUGHT. Complete Course $1.98. Information free. Stultz, Box 184, Kansas City 19, Kan.

CHEMICALS & SUPPLIES

EDISON'S HOME laboratory made him famous. Start yours today. Catalogue Chemicals and Apparatus 15c. Microscopic Stain Catalogue 20c. Both for 25c. National Scientific Company, 2204 North Ave., Chicago 47, Ill.

NEW LABORATORY Supply Catalog of Chemicals and apparatus. Contains over 5000 items with illustrations, 212 pages. Send 50c. Standard Science Supply Co., 1232 No. Paulina St., Chicago 22, Ill.

HANDBOOK FOR Chemical Experimenters. Hundreds of experiments; illustrated. 50c. Experiment Booklet, 15c. Supply Catalog, 5c. Reading Scientific Co., Reading, Penna.

CHEMICALS, OUNCE quantities, apparatus, catalog 10c. Fleischer's Laboratories, Everett-49, Mass.

EDUCATIONAL & INSTRUCTION

LINGUAPHONE MAKES languages easy. At home learn to speak Spanish, Portuguese, Italian, French, German, Russian, by quick, easy Linguaphone Conversational Method. Save time, work, money. Linguaphone Correspondence Courses are available to Veterans under G. I. Bill of Rights. Send for free book. State if G. I. Linguaphone Institute, 145 RCA Bldg., New York 20, N. Y.

STUDY AT Home—Math., Drafting, etc., using our new, remarkable, low cost, individualized, "Pre-Tech" Method Sheets. Learn the easy way. Write Now! Pre-Tech Institute, 1311 Widener Building, Philadelphia 7, Penna.

MEDICAL LABORATORY technicians in great demand. We train you in your own home, in your spare time. Also home study course in general chemistry. Catalogue free. Imperial Technical Institute, Box 973-A, Austin, Texas.

LEARN TYPEWRITER repairing under G.I. Bill. Adding machine and calculator courses available. For information write Dept. MI-8, Capitol School of Typewriter Mechanics, 1328 New York Avenue, N. W., Washington, D. C.

BOOKKEEPERS! INCREASE your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Full or spare time. Details Free. No obligation. Ellis, Box 202, Cedar Grove, N. C.

NOW YOU can have an office. Learn credit-collection business by new home study course. Many earn up to $5,000-$15,000 annually. Free bulletin. Franklin Credit School, Dept. 208J, Roanoke 7, Va.

PIANO TUNERS are in demand making big money. Learn piano tuning at home. Write Evansville School of Piano Tuning, Dept. A, 714 S. E. Second Street, Evansville, Ind.

GET GOOD jobs by learning free hand technical sketching. Learn with or without instruments. No talent needed. Free lessons. Acme, 1413 Butler, Easton 2, Penna.

WIN THOUSANDS of dollars in contests. Free booklet. National School of Contest Writing, Dept. M, 123 North 13th Street, Philadelphia 7, Penna.

DEGREES. HOME Study Catalogue. Arts, Sciences, Philosophy, Psychology, Metaphysics. "Esoteric School Sciences," Chesterfield, Ind.

PREPARE FOR civil service examination. Pay for course after securing position. Write, Free School, Dept. MI-9, Kokomo, Ind.

AMAZE OTHERS. Add columns instantly. Add faster than adding machine. Free details. T. Math Institute, Box 463, Nashville 2, Tenn.

BOOKKEEPING LEARNED in one evening. Complete, easy course $2.00. Auditax, 4515N Sunset, Los Angeles 27.

LEARN BOTTLED gas plumbing trade. High pay. Demand enormous. Free particulars. Enseo, Pasadena 16, Calif.

HERBALISM—COMPLETE Course in 2 volumes. 1000 recipes. Particulars free. Home Service, Forestville 4, Va.

PAINT BEAUTIFUL pictures quickly, easily, inexpensively. Free literature. Art Book Shop, Arnold 4, Mo.

HOME STUDY course, drugless therapy. Free Literature. Inst. of Drugless Therapy, Tama, Iowa.

FORMULAS & PLANS

CONCENTRATED VEGETABLES. Highest grade, raw, dehydrated, in tablet and powder form. No drugs. Write today for free circular. Kiro Concentrated Foods, Tama, Iowa.

REAL MANUFACTURING formulas. Lists free. W. Cummings, Chemist, Gordon Ave., Syracuse, N. Y.

ICELESS ICE! Colder: cleaner: cheaper: instructions. 25c. Duffy, Covington 2, Ky.

FUNNY FACES

LEARN TO draw funny faces. Write Funny Faces, Modesto 3, Calif.

HANDWRITING ANALYSIS

ATTENTION! HANDWRITING analyzed. State age. Enclose $1.00. Otty Kling, 2240 Selma Ave., Youngstown 4, Ohio.

MAILING LISTS

NAMES, 300—MEN, cash buyers, $1.00. S. & E. Co., Dept. MI, Red Lion, Penna.

MONEYMAKING OPPORTUNITIES

VENDING MACHINES earn big money! An investment as low as $10.50 will start you in this fascinating, profitable business and can lead you to the road of success and independence. Routes can be established and operated in either full or spare time with no experience needed. Write for full details and our free catalog illustrating our nut, candy, gum and stamp vendors; also slot machines, amusement games, etc. Parkway Machine Corporation, 623 W. North Avenue, Dept. 16, Baltimore 17, Md.

SHINGLERS, ROOFERS earn big money lifetime. Start neighborhood business. Complete illustrated instructions. Money back guarantee. Cedar shingling $1.00. Asphalt shingling $1.00. Both $1.75. Shingler, Box 88A, Pentiction, Canada.

SEWING MACHINE Repairmen make Big Money lifetime. Start neighborhood shop. Complete repair manual, covering all makes, $1.98 postpaid. Money Back Guarantee. Sewmachine Serviceman, Hamilton DD, Ohio.

A $100-A-MONTH hobby at home! No soliciting, no mail order, no meeting people. Easy, enjoyable pastime. Details, 25c. (Refundable.) Laura Dickson, 1006-MI Elizabeth St., Anderson, S. C.

UNIQUE HOME Business. Substantial income possibilities through your telephone! New development. No selling! Information, $1.00. Francis, 4638-D Northeast 34, Portland, Ore.

LEARN TO make seashell jewelry, novelties. Designs and instructions free with $2.00 and $5.00 Kits. Also artificial flower supplies. Herbert Diamond Co., Box 4619, Miami 31, Fla.

ELITE COLLECTION. New edition, contains 137 practical Money-Making Plans; local and mail order. Particulars free. Elite Co., 220-G Grand St., New York 13, N. Y.

WOULD YOU pay 3%—first $350 made? Color-illustrated book "505 Odd Successful Enterprises" free! Expect something odd! Pacific, Oceanside, Calif.

"WESTERN ADVERTISER" offers many worthwhile mail order opportunities. Sample copy Free. Harold Edlund, 577 Kensington, Los Angeles 26, Calif.

$1,000,000 FREE—CONTESTS—Yearly. Win Fortune. Winners prepare your entries—lowest cost. Research, 13 Earl Street, Red Bank, N. J.

MERCHANT SEAMEN earn big pay. Complete information how these jobs are secured $1.00. O. Coffee, Box 844, Sta. H, Los Angeles.

START HOME manufacturing business. Over 100 Formulas, Preparations, Recipes. Only 50c. Barcel, 2152 Ellis Ave., New York 61, N. Y.

LIQUID MARBLE—Moldmaking. Composition flooring, Plaster-Casting. Moneymakers. Literature. Kemixal, Parkridge, Ill.

MANUFACTURE PAINT. Profitable business of your own. Sample formula 10c. Shults, 7168 Lyndover, Maplewood 17, Mo.

GET 400 MONEY Making Plans. Formulas. Schemes. Exposes. Folio Free. Formico Studios, Box 572, Dayton, Ohio.

WOULD $25.00 EXTRA spare time interest you? Complete plans, 25c. Frederes, 52 Marshall, Rochester 11, N. Y.

BOOKLET, "WORKING Your Way Through College," $1.00. Ideas described. Lee Dickinson, Box 385, Hampton, Va.

MAKE BIG money metallizing Baby Shoes the modern way. For details write Box 7652, Philadelphia 4, Penna.

DETECTIVES EARN Big Money. Experience unnecessary. Particulars free. George Wagoner, 125-J West 86th, N. Y.

EARN MONEY evenings, copying and duplicating comic cartoons for advertisers. Adservice (3), Argyle, Wis.

"WHOLESALE CATALOG (Illustrated)." 10c Bargains Galore. Stafford, Box 5311-A, Indianapolis 1, Ind.

BOOKLET "SELLING Office Supplies by Mail" 25c. Municipal, 217-M Longwood, Merchantville, N. J.

UNUSUAL MAIL order—home work opportunities. Guthrie, 2125-F Maryland Ave., Norfolk 2, Va.

LAZY MEN Wanted. 900% profit, stamping key-protectors, dog-tags. Arrington's, La-Grange 6, Ga.

HANDY MEN make money repairing clocks. Write Jones, 1210M Dudley, Utica, N. Y.

BIG MAIL 6 months 25c. Roth, 1455M Cornelia, Chicago 13, Ill.

PROFITABLE OCCUPATIONS

SELL ULTRA-BLUE stock signs to stores, 1000 slogans, comedy, general, religious 7"x11"—Cost 6c—sells 35c—Make money. 15—samples ultra-blue signs 7"x11"—$1.00 Postpaid. Lowy, 8 West Broadway, Dept. 411, New York City 7.

START LAMP business in your home, basement, garage. Profitable, fascinating, easy to learn. Illustrated course teaches you. General instructions, and wholesale catalog—$1.00. Gearon Company, 27M South Desplaines, Chicago.

$40.00 WEEKLY, MADE growing mushrooms. Fresh, Dried, Dominion Patent 331583. Free Spawn. North American, 169M Yonge, Toronto, Canada.

TORTOISE SHELL makes beautiful costume jewelry. Pins, bracelets, earrings, 1¼"x6" piece unpolished $1.00. S. Patchett, 5053, Cristobal, C. Z.

$5,000 FROM HALF acre growing Ginseng, seed supplied. Crop bought. Particulars 10c. Associated Growers, 1169 Corydon Ave., Winnipeg, Canada.

MAKE MONEY feeding people. Friendly restaurant monthly shows how. 12 issues only $1. Digest, 2385½ Edgewater, Los Angeles 26.

SPECIALTY MANUFACTURING, offers customers products under your own label. Investigate. Beecroft, De Soto 2, Kans.

GOLD PANNING for profit! Fascinating instruction book, $1.00. Mountain Gold, 627 Lillian, Stockton, Calif.

POULTRY

RINGNECK PHEASANT Newberg and Wild Rice. Serves four. $3.00 prepaid. Ask your grocer or write Samuel Martin, Seattle 1, Wash.

RAISE FRYER new easy way. One man home plant earns $500 monthly. Details free. Fortune Fryer Farms, Box R, Simi, Calif.

RADIO SUPPLIES & INSTRUCTION

FIX ANY Radio. Amazing new instrument locates radio troubles double quick. Simple instructions show you how. Thousands in use. Write today for 24 page booklet "The Inside Story." Feiler Engineering Co., 945 George St., Dept. MI, Chicago 5, Ill.

MAKE SINGLE, tubeless, batteryless, distance-getting crystal radios. Crystal and illustrated instructions 25 cents postpaid. Allen, 427-M, Clinton, Mo.

"ALL ABOUT Headphones." Latest complete repair Handbook, including "Radiobuilder"—25c. Laboratories, Eye-k, San Carlos, Calif.

GUARANTEED RADIO Tubes Wholesale List. Spada, 10 Lexington, Wethersfield 9, Conn.

TREASURE FINDER

TREASURE, MINERAL locators. Low priced, lightweight, unsurpassed in efficiency. Time-payment plan. Free 16-page booklet upon request. Fisher Research Laboratory, Inc., Palo Alto, Calif.

METAL DETECTORS. The very latest circuit. Free literature. Hedden Metal Detectors, 3329 Liberty Ave., Pittsburgh 1, Pa.

SEEK BURIED Treasure. Methods, mysteries, devices explained. Circulars free. Century Press, Box 151F, Glen Ellyn, Ill.

PRINTING, MULTIGRAPHING, MIMEOGRAPHING, ETC.

YOUR NAME and address neatly printed across the top of 50 Government Postals, $1.00 Postpaid. Free sample. Harold R. Eisert, 218 Beach 81st Street, Rockaway Beach, New York.

QUALITY PRINTING: Business, personal stationery. State requirements. Samples. Mero Products, 98 Morrison, Punxsutawney, Penna.

WRITE FOR samples, prices attractive letterheads, cards, circulars. Journal Printing Co., Newark 1, Ark.

PRINTING OUTFITS & SUPPLIES

"PRINTOMATIC" SELFFEEDING Post Card Stencil Printing Duplicators $9.50 Up. Office Size Duplicators, Speedprints, Hilcos, Excellographs $33.41 Up. Literature Free. Pittsburgh Typewriter Supply, 336-WF Fourth Avenue, Pittsburgh 22, Penna.

MAKE YOUR Own Printing Cuts. Newly invented Plexiplate Process. Plexiservice, Argyle (3), Wis.

PRINTING OUTFITS, type. Send dime for illustrated supply book. Kelsey, H-57, Meriden, Conn.

INEXPENSIVE HOME-MADE printing press. Details Free. Novelty Shop, Downsville, La.

PRINTING MACHINERY. Type, Supplies. Lists 3c. Turnbaugh Service, Loysville, Penna.

RUBBER STAMPS & MARKING DEVICES

RUBBER STAMPS. Send for illustrated literature. Lee-Vail Press, Dept. 6-B, Box 1242, Indianapolis 6, Ind.

READY MADE stock stamps. Big list. Criterion Stamps, P.O. Box 2326, Denver 26, Colo.

3 LINES 50c. ALSO, printing. Catalogue. Johnson Press, Box 6-M, Morningside, New York 26.

ONE LINE 20c; 2—35c; 3—50c; 4—65c. Rubber Stamps, Auburn, Neb.

INDIAN CURIOS, RELICS, ANTIQUE FIREARMS

CLOSING OUT:—400 Antique Firearms; 35,000 Indian Relics, Coins, Confederate Money, Cartridges, Swords, Fossils, Bullet Molds, Flintlocks, Carbines. Illustrated Catalog 25c. Heike, Wenona 4, Ill.

INDIAN RELICS. List free. Nirscher's, 27 South 10th, Belleville, Ill.

HAVE INDIAN Relics for sale. Frank V. Linker, Danville, Penna.

RARE COINS

CLOSING OUT:—400 Antique Firearms; 35,000 Indian Relics, Coins, Confederate Money, Cartridges, Swords, Fossils, Powder Horns, Carbines, Flintlocks. Illustrated Catalog 25c. Heike, Wenona 6, Ill.

$10.00 EACH FOR certain Lincoln pennies; Indianheads $50.00; dimes $1000.00. Send dime for catalogue of prices paid. Lincoln Coin Company, 806 Indiana, Elkhart 7, Ind.

FREE! FOREIGN Coin, banknote and Coin Collectors Illustrated Catalog to approval service applicants. Send 3c postage. Tatham Coinco., Springfield-9, Mass.

COMMEMORATIVE $½—WASHINGTON, Stone Mountain, Columbian, $1.50 each. Illustrated Catalogue, 25c. Shultz, Salt Lake 9, Utah.

STAMP COLLECTING

ZOWIE-E-E! A Barrel of Fun for only a Dime! 500 United States Stamps—Absolutely unpicked and unsorted—just as received from church missions. Many varieties, including large commemoratives, airmails, high denominations up to $5.00! Stampdom's biggest package of fun—and you might find something really valuable!! Price only 10c to serious approval service applicants. Money back if not delighted. Illustrated bargain lists with each order. Mystic Stamp Company, Department 30, Camden, New York.

307 ALL DIFFERENT 10c. You will find scores of new varieties here for your collection! Big and little stamps, bisected stamp, commemoratives, triangles, high values! Bicolored beauties! Strange countries! Every stamp is different. Every stamp one you will delight in owning. Think of the fun you will have! All for only 10c to approval applicants. Write today and receive special Ionian Island stamp extra. Garcelon Stamp Company, Box 475, Calais, Me.

FREE $25.00 STAMP Collector Outfit—Finest, most complete outfit ever offered. Large Scott Album, valuable collection of 1,050 different stamps, airmails, odd-shapes, hi-values, "stamp finder," watermarker, magnifier, perf-gauge, tongs and hinges. Actually over $25.00 value absolutely free when regular customer. Mail application now for foreign approvals. Plymouth Specialties Company, Dept. 69, Bell, Calif.

FREE—FAMOUS Americans Set, plus Flag Set, plus the National Parks set, plus the Presidential Set to the $5. A total of 90 stamps absolutely Free to customers for our unsurpassed United States or Foreign selections. Send 3c postage for 15 of the above mentioned stamps and full particulars. Triboro Stamp Company, 145 Nassau Street, Dept. 309, New York.

WOW!! $10.00 WORTH of fun—only 10c! What a treasure hunt! Big package 500 Foreign Stamps from foreign missions, other sources. Include Stamps from Africa, South America, Free French, Somali, Palestine, etc. Includes airmails, commemoratives and stamps worth up to 50c. This offer sent for 10c to Approval Applicants only. Jamestown Stamp Co., Dept. 31, Jamestown, N. Y.

NEVER OFFERED Before—We are offering a packet containing extremely attractive stamps from such distant and hard-to-get countries as Abyssinia, Macao, Cayman Islands, Brunei, plus a beautiful bicolor triangle, all are sent absolutely free to approval applicants. Kent Stamp Company, G.P.O. Box 87-C, Brooklyn, N. Y.

POSITIVELY GREATEST Free Offer—Rare Octagonal (eight sided) stamp, gorgeous diamond, giant triangle, also mammoth and midget stamps, total value $2.00, All Free to approval buyers. Plus Free, Scott's International $6.00 album and latest Stamp Catalogues. Odd Stamps, P. O. Box 1700, San Francisco, Calif.

GIBRALTAR PACKET Free—Nice collection Gibraltar—New Zealand Centennial—British Uganda—French Colonials—Early British Colonial—West Indies—South America—War stamps plus Philatopic Monthly Magazine. All for 5c postage. Empire Stamp Company, Dept. MM, Toronto 5, Canada.

WE'RE GETTING Hooked—By offering 50 different U. S. and large packet Mixed U. S. and Mystery Package containing a rare Armenia stamp; $3.00 value. All for only 25c to approval applicants. Gulf Stamps, 1413 Sterling Bldg., Houston 2, Tex.

ADOBE HOUSE

Plans and elevations for the construction of a really modern picture-window home built out of adobe brick. An asphalt-emulsion stabilizer renders the earth used for brick-making resistant to rain and weather. Overall dimensions, excluding a separate garage and studio, are 64x37 feet. It contains two bedrooms, a kitchen, a living room (16x30 ft.), dining room and a nine-foot wide porch that is 44 ft. long. A fireplace features a storage bin for wood that's stacked from the outside of the house. For blueprints and descriptive text, send $6.00 (additional sets are $3.00 when ordered at the same time) to the MI Reader Plan Service, Fawcett Building, Greenwich, Conn., and ask for Plan No. 50.

CAN YOU Ring the Bell? Free Scott albums, catalogs and accessories to our customers for foreign approvals. Write for a selection and learn how you too can Ring the Bell. Bell Stamp Service, Dept. A, 4248 Elizabeth St., Bell, Calif.

15,000 DIFFERENT STAMPS at 2c each! Mounted in books of 100 or 1,000. For general collectors only. References or deposit for 1,000 size books. Gordon Davison, Box 1019T, Manchester, N. H.

FREE!!! MINT British Colonies from Solomon Islands, Caymans, Grenada, Dominica, Turks Caicos. Absolutely free to new approval applicants. Viking, 130-M Clinton St., Brooklyn, N. Y.

CHOICE OF 35c Worth of Stamps from our First U.S. Selection Free to applicants enclosing 3c Postage. Large Selection to choose from. Act Now!!! S. E. Engel & Co., 38 Park Row, N. Y.

31 DIFFERENT WITH George Washington Stamps from Brazil and Ecuador; Pirate Island; Victory issue; Medical set; others—all 4c with approvals. Grayson Stampco, Sherman, Tex.

EXPERT SERVICE—Finest quality—Reliable, established dealer. Sample packet of 25 popular issues 10c to approval applicants. Bennett, Box 252, Terminal A, Toronto, Canada.

RECEIVE $1 WORTH of desirable stamps of your choice from our gigantic approval selection. Send only 25c to Cosmopolitan Stamp Co., 1457 Broadway, N. Y.

ZEPPELIN, GERMAN U Boat, Cyprus, Trinidad, Tobago, Uganda. All sent upon receipt of 10c. Approvals included. Thirco, 101 3rd Ave., Newark 4, N. J.

100 DIFFERENT STAMPS, 2 sets included, South Africa Midgets, 7 Other, 5c to Approval Applicants. Friend's Stamp Co., 18426 Shields St., Detroit 12, Mich.

STAMP COLLECTING — World's greatest hobby! "Stamp Collecting for Pleasure and Profit" $1.00 postpaid. Details free. Bruce, Box 341-F, Palo Alto, Calif.

FREE! CANADIAN sets, Royal Visit, George VI, George V, Coronation, Jubilee, others, to approval applicants. Ensign, Box 118-X, South Orange, N. J.

WORLD'S LARGEST Stamp (7½x14 inches). A real curiosity! Retails for 50c, only 3c to approval applicants. Tatham Stamp Co., Springfield 9, Mass.

FINE APPROVALS. Fast, personal service. What countries do you prefer? I'll send their stamps. Mit Skinner, 438 Locust, Long Beach 12, Calif.

FREE MONTHLY illustrated bulletin showing recent issues. Penny approvals on request. Reed Company, Box 9808M, Chicago 90, Ill.

FRENCH COLONIALS, 20 different, mint pictorials, only 10c to new applicants for 1c to 10c approvals. Russell Holcombe, Canton, Ga.

UNITED STATES approvals, complete coverage, fine quality, attractive prices. Seminole Stamps, Box 1138-M, Coral Gables, Fla.

50 DIFFERENT BELGIUM or 50 different France and our price list, one silver dime. Stampsales, Box 1649N, Oakland 4, Calif.

200 DIFFERENT, INCLUDING Roosevelt triangle, 5c to approval applicants. K. Avalon Stamp Co., Springfield, Mass.

200 DIFFERENT STAMPS—cataloging up to 15c each—only 3c to approval applicants! Littleton Stampco, Littleton 4, N. H.

SWAP 50 OF your stamps and 10c for 50 different stamps. Stamp Swap Shop, 2044 Wagner Street, Schnectady 7, N. Y.

FREE! MANAGUA Nicaragua Diamond Issue Set, Mint, with approvals. Martin, Box 1128, Miami Beach, Fla.

BRAZIL DIAMONDS shaped set, 10c with approvals. Vargo Stamps, 6044 South Fairfield, Chicago 29, Ill.

POUND STAMPS containing thousands $1.00. Longacre Shop, 100b West 42nd, New York City 18.

HINGES. ALBUM. Hundred mixed 20c. Thousand 70c. Illustrations 10c. Hywest, Southaven, Minn.

50 DIFF. FINLAND 10c with ¼—½—1c approvals. Carroll's, 4357-B S. Hoover, Los Angeles 37, Calif.

PENNY APPROVALS that satisfy. Neil Gronberg, Box 5441-M, Philadelphia 43, Penna.

FREE! HUNGARY Xmas Set to approval buyers. Pladon, 1717-MIL Idaho, Toledo 5, Ohio.

50 UNITED STATES 5c with approvals. Roush Stamps, 51 Chestnut, Mansfield, Ohio.

START YOUR own stamp business. Write for free circular. Donald Shepard, Box 5139, Chicago.

POWERFUL MAGNIFYING Glass, 5c. Approvals. Buchanan, 307 East 23rd, N. Y. 10.

50 DIFFERENT UNITED States, 10c. Pricelist free. Seidenberg, Cassopolis, Mich.

DO YOU want U. S. approvals? Write Edward Wenigman, 929 Oakdale, Chicago.

100 DIFFERENT WITH Approvals. Jacobsen, 59 Nagle Ave., New York 34, N. Y.

FIRST DAY covers on approval. Bert Knobel, 1918 S.W. 12th Street, Miami 35, Fla.

80 NORTH AMERICAN 5c with approvals. Bryson, Drawer F-ML, Rossford, Ohio.

U.S. BARGAIN price list free. S. Stone, Box 52-M, Dorchester 24, Mass.

FREE! CRYSTAL-MOUNT samples! Harris & Co., 201 Transit Bldg., Boston.

FREE! TINY Chinese "Midget" War set Approvals. Seminole, Leeds 8, Ala.

FREE! COMPLETE Balkan aviation set with approvals. Beaman, Leeds 8, Ala.

BODY-BUILDING COURSES

DEADLY JUDO—Fiercest fighting technique. Trick knockouts. (200 photographs—plus illustrations): Expert instructions. Three volumes. Complete $2.25. Variety House, Box 46-DA, Wall Station, New York 5.

BAR-BELLS, DUMBBELLS, exercise equipment. Courses. Free booklet. Good Barbell Co., Reading, Penna.

JUDO FIGHTING! Illustrated 1948 Edition! $1.00! Rex, 378 Keene, Perth Amboy, N. J.

DETECTIVES

DETECTIVES—WORK home—travel. Experience unnecessary. Detective Particulars free. Write, George Wagner, J-125 West 86th, N. Y.

DETECTIVE TRAINING

SHADOWING — INTERESTING, illustrated instructions by veteran investigator. $2.00. Sheldon Hutchins, Box 4921-M, Los Angeles 1, Calif.

INVESTIGATION, CRIMINAL. private. Easy to learn. state age. Manchester School, Hillcrest Bldg., San Diego 3, Calif.

DETECTIVE TRAINING. Phillips Secret Service, 1917G North Kenneth, Chicago 39, Ill.

GAMES—ENTERTAINMENT

HOME MODEL Slot Machines, Games, and Home Bars. Write for catalog. Webb Distributing Co., Dept. MA, 6 South Kedzie Ave., Chicago 12, Ill.

"HEAD?—TAILS?" Toss either! Any Coin! Anytime! Copyrighted Manual $1.00. Arro Company, Bridgeport 1, Conn. (961-L).

RACE HORSE solitaire! Fast, mysterious, intriguing. Different. Instructions 25c. Piper, Box 182, Royal Oak, Mich.

5 GAMES—BASEBALL, basketball, tennis, golf, hockey, $1.00. S&K Games, Box 123, Canton, Ohio.

TRIPLE-DEAL COPY 10c, P. O. Box 842, Denver 1, Colo.

HYPNOTISM

HOW TO Hypnotize! Amazing, easy-to-learn illustrated self-study lessons. Complete course—includes: hypnotism over telephone, on stage, conquering timidity, dominating others. Teaches you how to develop your personal power. Sensational value, only $1.95 postpaid; $2.25 C.O.D. Satisfaction Guaranteed! Order "Hypnotism Course" today. Nelson Company, 1139 Wabash, Dept. 3J03, Chicago 5.

HYPNOTIZE ANYONE. Learn modern speed hypnotism. Selfhypnosis. Methods Revealed. Exciting Experiments. Overcome inferiority complexes, alcoholism, smoking, stuttering, insomnia. Improve your memory. Complete practical homestudy course, $2. Powers Institute of Hypnotism, 1324-K Wilshire Blvd., Hollywood 14, Calif.

HYPNOTIZE! CONTROL the minds and actions of others! Easily learned. Completely illustrated course of "Genuine Hypnotism" $1.00. Moneyback guarantee. Fowler, Studio J, Box 1284, Boston 4, Mass.

HYPNOTISM. "HOW I Hypnotize." 25c. Dr. Lonk (Hypnotist), D-1313, Palatine, Ill.

MAGIC TRICKS, JOKERS, PUZZLES

READ MINDS for fun and profit! Mystify perfect strangers and friends answering unspoken questions, correctly guessing names, numbers, coins, etc. Amazing secrets of modern professional mind-readers revealed. Complete course sent postpaid for only $1. Satisfaction guaranteed! Reiss, 3017-F Ocean Parkway, Brooklyn 24, N. Y.

TRICKY MAGIC Matchbox. It turns around. It stands. It opens. Confuses, Amuses, Everyone. Easy to do. Free to you if you send 25c for Big Illustrated Catalog of 425 Magic Tricks, Magician, 2463-E Kensington Ave., Philadelphia 25, Penna.

MAGICIANS' HEADQUARTERS. 400-page professional catalogue, pocket, parlor, stage tricks. World's finest magic. Send $1 for catalogue (refunded first $5 order). Kanter's, R-1311 Walnut, Philadelphia 7, Penna.

500 TRICKS. SEND only 10c for Douglas' famous 112-page Catalog 500 Tricks. New magic for amateur, professional. America's fastest service for 25 years. Douglas Magicland, Dept. 3, Dallas, Tex.

SECRETS—OVER 250 baffling tricks exposed. Amaze your friends. Challenge the experts. Illustrated book tells all. Rush $1.00 to Jimray Sales, Box 592, Dept. "C," Whiting, Ind.

CARD TRICKS! Exciting, Entertaining! New, enlarged Folio, only 50c—Circular Free. Schneider Specialties, 409 Doty, Fond du Lac, Wis.

BE POPULAR! Earn money! Have fun! Send 10c for giant catalogue amateur, professional magic. Newton Company, Dept. 40, Bonham, Tex.

3 MAGIC CATALOGS and "Magic Is Fun" magazine sent for only 25c. Robbins Co., 152-F West 42nd Street, New York.

BE A magician. Large professional magic catalog of latest tricks, 35c. Ireland, 107 Dearborn, Chicago 2.

PACKAGE EXPLOSIVE matches and cigarette loads $1.00. Jack Howard, P. O. Box 615, Nashville, Tenn.

WE SUPPLY every noted magician. Large Professional catalog 50c. Holden, 222 West 42nd St., New York.

LEARN MAGIC, mindreading, ventriloquism, write for particulars. Quackenbusch, Big Flats, N. Y.

16 WORLD'S BEST card tricks and catalog 25c. Sterling Magic, Box 191, Royal Oak, Mich.

FOUR POPULAR card tricks with catalog 25c. William Stivers, 40 Salem, Medford, Mass.

MUSIC INSTRUMENTS & INSTRUCTION

PHONOGRAPH MANUFACTURER will examine likely recording material free. Also furnish collaborators on percentage basis. Recola Recording Company, Box 110, Hollywood, Calif.

SONG POEMS wanted to be set to music. Send poems. McNeil, Master of Music, 510 MI South Alexandria, Los Angeles, Calif.

VOICE! SECRETS! Mind power! Success beyond dreams $1.25 complete. A. E. Cor, 902 No. Jersey Ave., Norwalk, Calif.

NOVELTIES, ETC.

BEAUTIFUL BATHING girl cigarette butt snuffer, cast metal statuary bronze finish. Only $1.00 Postpaid. Jeffton Products, 1541 N. Wood St., Chicago 22, Ill.

TATTOOING SUPPLIES

TATTOOING OUTFITS. Supplies. Illustrated list Free. Zeis, 728 Lesley, Rockford, Ill.

VENTRILOQUISM

LEARN VENTRILOQUISM. 3c stamp brings particulars. Smith, Dept. 250, 801 Bigelow, Peoria 5, Ill.

BOOKS, PERIODICALS, PICTURES, POSTCARDS

USED EDUCATIONAL books and courses sold, rented, exchanged. Inexpensive. Money-back guarantee. Lists free. (Books and Courses bought.) Write Lee Mountain, Pisgah, Ala.

FREE SPEED tables (standard AMA distances) with paid year's subscription to Midwestern Modeler. Send $1 (check or money order) to 606 North Dellrose, Wichita, Kan.

PERSONAL PRESIDENTIAL letters. Revealing booklet 25c Free details, moneyback. Levy, 4314½A Sunset, Los Angeles, Calif.

PASTIME, PLEASURE, profit, book list free. R. T. Johnson, Box 49, Astoria Station, Long Island City 2, N. Y.

1948 CATALOG AND Wholesale Directory. 10c. Latshaw Sales, Sunnyside-A, Indianapolis 44, Ind.

BOOKHUNTERS! ALL subjects. Send wants! Jaher Book Service, 620-M East 178 Street, New York 57.

BOOKS! BEST sellers! Drop-shipped. Free synopses. World-Press, Columbia City, Ind.

FIVE THOUSAND free books. Particulars. stamp. Box 531, Waterbury 87, Conn.

CAMERAS, EQUIPMENT & PHOTO SUPPLIES

ENLARGER. FIFTY cents will buy the complete plans and instructions for the building of MI's Parallel Arm Enlarger. It has been especially designed to accommodate all cameras from a 35mm Argus to a 4x5 Speed Graphic. Your own camera and lens form the optical and focusing system. This enlarger has been built by dozens of enthusiastic amateur photographers. Send your remittance and request to Fawcett Publications, Inc., Greenwich, Conn. Ask for Plan No. P-2A.

35MM ENLARGER. Large-size plans for the construction of an enlarger expressly designed to be used with miniature negatives are now available for readers of MI. This enlarger uses a single condenser which also serves to hold the negative absolutely flat in the focal plane. For the easy-to-follow drawing send 50 cents to the MI Reader Plan Service, Fawcett Publications, Inc., Greenwich, Conn. Ask for Plan No. P-4.

ELECTRIC MOVIE Cameras, 16mm. Army GSAP, original condition. Value $200. Complete with f/3.5 lens New $32.50, Used $19.50. Accessories available for home conversion. Free literature. Completely converted Lektro. 16mm, Ready-To-Operate $59.50 Guaranteed. Magazine film for same $2.50, includes processing. Fotoshop, Room 146, 18 E. 42nd St., New York City 17.

CONTACT PRINTER. Plans and instructions to build MI's famous contact printer now available. Will take all negatives up to and including 4x5 in. as well as postcard size. The easy-to-follow drawings can be used as full-size templates if desired. Send 50c to Fawcett Publications, Inc., Greenwich, Conn., and ask for Feature Plan No. P-1.

GUARANTEED SUPER X Reversible panchromatic 16mm surplus film! 6—100 foot rolls ready for camera $8.10! Bulk, 600 feet, $5.00! Processing available. Filmcraft, 47th and Holly, Kansas City 2, Mo.

PHOTOGRAPHY FOR pleasure or profit. Learn at home. Practical basic training. Long established school. Write for booklet. American School of Photography, 1315 Michigan, Dept. 2041, Chicago 5.

FREE! 116-PAGE illustrated photographic catalog, send 3c stamp. Bloom's Camera Center, 1657-MI Main Street, Springfield, Mass.

LEICA, CONTAX or Rolleiflex. Mr. Morris, 172 Martine Ave., White Plains, N. Y.

HOME MOVIES

KODAK SUPER-X Movie Film at Give Away Prices! Gov't. surplus but Good as Gold! Tested and fully guaranteed. 16mm 100' $2.95; 50' Magazine $2.50; 8mm 25' Double 8 $1.65. Processing included. Stock up for summer shootin'. Fotoshop, Room 195, 18 E. 42 St., New York City 17.

MOVIE FILM at Tremendous Savings! Kodak Super X, Gov't. stock, Tested, Guaranteed! 16mm 100 ft., $2.95; 50 ft. Magazine, $2.50; Double 8mm 25 ft. $1.65. Super XX, 50c add'l. each roll. Free Processing. Fast service. Photo Surplus Sales, Box M12, 12 Duane St., New York City.

FILM-MOVETONE IS back. It's Weston 12 nonhalation. Free processing 100 ft. 16mm $3.25, 25 ft. double 8mm $1.50. Bulk film without processing 100 ft. 16mm $2.25, double 8mm $2.45. Free circulars. Fromader Genera, Davenport 8, Iowa.

75 BEAUTIFUL KODACHROME 8mm-16mm movie subjects. Glamour, travel, national parks, novelty. Low prices. Descriptive brochure, 25c. World In Color Productions, Elmira, N. Y.

GIRLS, BEAUTIFUL Girls, in New Home Movie, California Versus Florida. Headline $5.00. 8mm $2.50. Catalog Dime. Bailey Film, 2041 North Berindo, Hollywood 27, Calif.

MOVIES—8-16MM. "Variety subjects," rare, cold, or indifferent. Free lists. (Used Equipment bought.) Aero-Traders, 7-MI, Adams, Mass.

8 16MM FILMS. Many bargains. Sales, low cost rentals. Catalog dime. Warrington Films, 1418 Knecht Ave., Halethorpe 27, Md.

HOLLYWOOD FILMS. Color sample, $1.00 (refunded). Catalogs 10c (refunded). Stone, Lunenburg 9, Mass.

FREE. MOVIE Catalog; sample films. 10c. Goodwill Company, Jackson, Tenn.

MOTION PICTURES & SOUND EQUIPMENT

"TONEMASTER"! UNIVERSAL'S powerful new 1000w 16mm Sound Projectors! List price $350; Special $285 complete. Dan's Service, 411 Redgate Avenue, S. Norfolk 7, Va.

8-16MM. SILENT-SOUND films. Complete rental library. All latest subjects. Free catalogue (sample film 10c). Garden Film, 317 W. 50th. N. Y. 19.

MOVIE FILM, machine processing service, bulk film, free literature. Atlantic Films, Reading, Penna.

PHOTO FINISHING

EVERY PICTURE an Enlargement! . . . New Electronic developments give you bigger and better enlargements at the same low prices. Any 8 exposure roll developed and printed Enlarge size, only 30c; reprints 4c each. Fast, Accurate Service Guaranteed. Send for free mailers today! Enlarge Photo Service, Box 791-C, Boston 2, Mass.

ENLARGEMENTS IN album form developed and printed in one continuous story-telling arrangement. Any 8 exposure roll reproduced this novel, loose-leaf way for only 30c. Reprints 4c each. Extra Prompt Service! Clip this ad for free mailers. Larga-Pic, Box Z14, Brookline, Mass.

MOVIE FILM Processing—Finest Automatic Machine Processing, 8mm, 16mm, 48 hour service. Also duplicating, editing, titling, other lab. services. Send for list of prices. Fotoshop, Inc., Room 172, 18 E. 42nd Street, New York City 17.

PHOTOGRAPHY FOR pleasure or profit. Learn at home. Practical basic training. Long established school. Write for booklet. American School of Photography, 1315 Michigan. Dept. 2042, Chicago 5.

2 BEAUTIFUL HI-GLOSS prints each good negative and enlarging coupon with each 6 or 8 exposure roll developed 28c. Owlphoto Co., Weatherford, Okla.

8 BEAUTIFUL DOUBLE Size pictures and roll developed 30c. 8 hour service. Free Mailers. Pacific Photo Service, Box 666, San Francisco, Calif.

8 PRINTS ALL enlarged to nearly postcard size from your roll or negative 25c; 16—50c. (Trial offer.) Willard Studios, Box 3536G, Cleveland, Ohio.

ROLL DEVELOPED and 8 prints 30c. Overnight Service. Free Mailers. Tri-Plex Photo Service, Box 375, San Francisco, Calif.

ROLL DEVELOPED, 8 prints and two enlargements 25c. Trial offer. Young Photo Service, 408-C, Albany 2, N. Y.

AUTOMOBILES—MIDGET CARS

"SPEED & MILEAGE" manual—Easily obtain greater speed, mileage, racing performance from any automobile! "Original" most complete book shows soup-up methods! Speed Tuning! Mileage Secrets! Racing Tricks! Photographs! Instructions on building inexpensive s-p-e-e-d equipment—Economizers—Custom Accessories—Mufflers—"Water Injectors" — Superchargers — "Hot-Rods"! — Speedsters!—Fast Conversions!—Engines! All about "Economy Tuning" compression, manifolds, ignition, balancing, fuels! Latest "Hollywood Customizing," Streamlining information; fascinating Pictorial Section; catalogues; Parts Lists! Everything $1.98. Almquist Engineering, Milford 28, Penna.

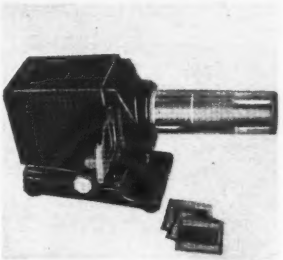
"SPEED & POWER" Handbook—Very latest methods! Construct your own super-chargers, water injectors, compression heads, fuel saving devices—Easily, practically without cost. Get racing speed, acceleration, dynamic power increases from any automobile! Build stock conversions! Fast roadsters! Hotrods. Ingenious formulas! Speed secrets! Fuels. Lubricants. Get "Economy Information"—Tuning techniques! Ignition! Carburetion! Mileage tricks. Catalogues! Illustrations! Including "Restyling Ideas"—Streamlining. Model revising! Customizing! Sport changes. Photographs! Parts lists! Drawings! $1.98 complete. Newhouse Industries, 5941-C2 Hereford, Los Angeles 22.

"VAPO-STEAMATIC"—WATER Injection. Easily constructed (for less than $1.00). Finest automatic "Moist-Humidity" system. Engineering triumph—gets up to 33 miles per gallon! Reduces wear, sludge. Tremendously increases horsepower. Acceleration! Eliminates ping, carbon, overheating! Smoother engine. Copyrighted, fully illustrated "Installation-Handbook," including additional "Injection-Conversions" covering tractors, airplanes, motorcycles. $1.00. Newhouse Industries, 5941-C1 Hereford, Los Angeles 22.

STUDEBAKER, FLOYD Clymer's new book (no connection with Studebaker Corporation) gives impartial, uncensored report 3000-mile economy, speed, record tests. Part by part equipment analysis. 3000 Studebaker owner opinion tabulations. 200 owner letters. Good, bad comments, no punches pulled. $1.50 postpaid. Clymer's book on Kaiser-Frazer same price. Clymer, Dept. C-98, 1268 So. Alvarado, Los Angeles 6, Calif.

"CUSTOM STYLING" manual—Easily make car look Hollywoodized, custom, ultra-beautiful by quick inexpensive methods! 100 photographs, instructions on customizing, restyling, streamlining—new and old cars. A-1-a-o speed, model, sport, conversions; accessories; mufflers; engine "soup up" specifications! Most complete book $2. Almquist Engineering, Milford 28, Penna.

35MM PROJECTOR



This 35mm slide projector will accept glass-bound slides as well as cardboard-mounted ones. Can be constructed entirely at home with the exception of the glass parts. Body of the projector can be tilted up or down while base remains level. Full-scale blueprints permit their use as templates if desired. Features include a revolving head and special heat-absorbing glass. Finished project is very professional-appearing. For blueprints, send $1.00 to MI Reader Plan Service, Fawcett Bldg., Greenwich, Conn., and ask for Plan PH-635.

FAMOUS CAR catalog reprints. Duesenberg, Italian Maserati racing and new Sport car, Mercedes-Benz, new rear-engined Isotta-Fraschini V-8, Rolls-Royce "Silver Wraith," Miller Race Cars, Cord, Rayfield Cyclecar, V-8 Chevrolet, Stanley Steamer, Doble Steamer. Specify catalog desired. $1.00 each postpaid. Clymer, Dept. C-9X, 1268 So. Alvarado, Los Angeles 6, Calif.

CHEVROLET SPEED manual now available to enthusiasts desiring real "hotrod performance" from their 1937 thru 1948 Chevrolets. Complete data and photos for building honest 110 mph road car, 130 mph hotrod roadster. Every page worth the total cost of only $2 postpaid. California Bill, Box L-3, Eaglerock, Los Angeles 41, Calif.

MIDGET CAR factory built $40. 1½ h.p. Clinton motor $30. Factory built scooter $75. Three-speed motorcycle transmission $12.50. 14 h.p. outboard motor $40. Race cars, midgets and big cars. Hundreds of other bargains. Mail order only. Send 25c in coin. Behnke's, Dept. A, 5721 Leland, Chicago 30, Ill.

MIDGET CAR book—Complete plans for easily building inexpensive midget racers, two passenger highway runabouts, "streamlined Roadsters," 3-wheel cars, scooters, etc. Motor data, supply sources. 75 photographs, blueprints! $1.98. Almquist Engineering, Milford 28, Penna.

HOT ROD Racing Book. 90 photographs, illustrations famous record holders used California Dry Lakes. Contains hotrod tips, closeup action shots, specifications. 8 beautiful drawings suitable framing. $1.50 postpaid. Clymer, Dept. C-9V, 1268 So. Alvarado, Los Angeles 6, Calif.

FROM SPEEDWAY to Roadway! Track-proved Hi-Speed Heads and Manifolds now available for your passenger car! No special tools needed! Increase horsepower 25%! Astounding Getaway! Free Illustrated Catalog. Speedsport, 6215 Diversey, Chicago 39, Ill.

CUSTOMIZING SUPPLIES—Finest Beautifying Accessories—Fast Car—Racing—Speed Equipment! Lowest prices. Handbook-Catalog, Photographs, Recommendations—20c Refundable. Almquist Engineering, Milford 28, Penna.

MODEL A Ford Instruction book. Complete details care, maintenance, 35 charts, drawings. A must for "A" owners. $1.00 postpaid. Clymer, Dept. C-9W, 1268 So. Alvarado, Los Angeles 6, Calif.

HOT-ROD MANUAL. Fast Fords, Photos, Instructions. $1.50. Air Mailed $1.75. Racing parts list 25c. Hollywood Hot-Rod, Los Feliz, Box 9626M, Hollywood 27, Calif.

NEW, SAFE, smooth engine triples mileage, your car. Dealers wanted. Literature 25c. Jet Engine Co., St. Augustine, Fla.

AUTO SUPPLIES & EQUIPMENT

J-E-T EXHAUST ejector minimizes back pressure—Increases power, mileage, engine life by Venturi Action! Chrome "Streamliner" clamps on tailpipe—Deepens tone! Beautifies-Customizes Appearance! Guaranteed. Specify Car . . . $3.95 Postpaid. Almquist Engineering, Milford 28, Penna.

RACING CAR equipment for all cars, engines, racing heads, manifolds, carburetors, mufflers, etc. Speed instructions and literature $1.00—refunded first order. Lee Motorcraft Co., 1412-C Great Northern Bldg., Chicago 4, Ill.

AUTO PARTS. Buy direct. Get dealers' prices. Represent us in your territory. Write requirements. Specify car make. Mechanics Auto Parts, Factory Warehouse, 3807-MI N. Ashland, Chicago 13.

REUPHOLSTER YOUR own car or operate upholstery shop. Complete auto upholstery instruction manual $2.00 Money Order. C.O.D. First Upholstery Service, 3439 Michigan Ave., Chicago, Ill.

WELDING FOR low-cost repairs on bodies, blocks, fenders. Adds to your profits. Easy with Hobart Welders. Free Catalog. Write Hobart Welders, Box SM-982, Troy, Ohio.

PISTONS—SPECIALIZING in making obsolete, and special, models. Popular makes in stock. Money back guarantee. M. Merryman Co., Box 166M, Lawndale, Calif.

MOTORISTS SAVE gasoline by Vacu-mating overrich mixtures. Fits all cars. For Free particulars write Vacumatic, Dept. 1375, Wauwatosa, Wis.

THE ABC of water injection. Complete information free. Advanced Automotive Products, Dept. 33, 563 Lake Road, Webster, N. Y.

AUTO TRAILERS

BUILD YOUR own Trailer! Save Money! Have every feature you want! Plans for House, Sport, Camp and Utility trailers. Catalog describing 9 models 10c (15c in Canada and overseas). Jim Dandy, Box 125-C, Wausau, Wis.

TRAILER PLANS, parts, accessories—complete line. Prompt delivery. Catalog 25c (coin); catalog plus booklet, "Trailer Building," 50c (coin). Marine Mart, Buffalo 7-H, N. Y.

MOTORCYCLES, BICYCLES, MOTOR SCOOTERS

MOTORSCOOTER $7.50. MIDGET racer $10, motorbike $5 less motors; Harley single $40. Midget car $55 complete. Motors $4 up. Plenty brand new engines and surplus motorscooters. Over 5000 small tires $1 up. Mail-order only. Send 25c for Big War-Bargain catalogue listing the above and hundreds of other bargains in motorscooters, motorcycles, midget racers, outboards, engines, etc. (35c by First Class Mail). Midget Motors Directory, Athens, Ohio.

MOTORCYCLISTS, CHROMIUM accessories. New and reconditioned motors. Complete stock Indian parts. Expert motor rebuilding. Indian Motorcycle Sales, Kansas City 1, Mo.

BUILD YOUR own motor bike. Simple and easy to build. Low cost transportation. Plans, instructions, and pictures. $1.00. Order, Brewster, 317 N. Flood, Norman, Okla.

WHEELS—STEEL disc rubber tired for toys, wagons, carts, etc. Sizes 5", 6", 7", 8", 10" available. United Wheels Mfg. Co., 11727 Lafayette Ave., Chicago 28, Ill.

NEW 1948 INDIAN and Harley parts catalog, 25c. Motor parts, chains, batteries, motor rebuilding. Chrome accessories. Lynn, 622 East Grand, Des Moines, Iowa.

BUILD AUTOMATIC Clutch, Midget Autos, Racers, Scooters, Tractors. 183 Plans. Free Handbook. Nichols Equipment Co., Dept. 1406, Purvis, Miss.

MOTORCYCLE NEWS—monthly. Yearly subscription $1.00. Latest Worldwide Information. Motorcycle News, 5424-C Sawyer, Chicago 25.

MOTOR SCOOTERS, bicycle engines. 120 miles gallon. Dime for catalog. Clymer, Desk C-95, 1268 So. Alvarado, Los Angeles 6, Calif.

MOTORSCOOTERS, MOTORBIKES, boats. Directory of gigantic bargains, 25c. Osborne Motors, Box 915, Winston-Salem, N. C.

SURPLUS AIRCOOLED engines. List, dime; new, used. Donz, Mt. Ephraim, N. J.

ELECTRICITY & ELECTRICAL SUPPLIES

ELECTRIC FANS? Assemble your own. 16" correctly balanced aluminum fan blade, ½" bore, $2.25, 18" all welded guard, $2.50. Use any ordinary motor. No C.O.D. Ted Riseman, 207 North Fifth, Springfield, Ill.

LAMP PARTS. Orders filled in 24 hours from largest variety of parts in country. Send 10c for illustrated catalog showing hard-to-get items and regular parts. Gyro Lamp, 5416M Clark, Chicago 40.

LAMP PARTS wholesale. Large variety available for building, repairing, or remodeling. Order in any quantity. New 1948 catalog, 10c. Gearon Company, 27M South Desplaines, Chicago.

ELECTRIC PENCIL—Writes, engraves all metals. 110 volts, $2.00—two for $3.00 postpaid. Battery model $1.00. Reb Industries, Elmhurst 3, Ill.

ELECTRIC PENCIL: Writes, Engraves all Metals. $1.00 postpaid. Beyer Mfg., 229-B Dixson, Uniontown, Penna.

LAMPS—LAMP parts—shades—Details 10c. Wrona Lamp Co., 2012 Cortland St. 1-C, Chicago 47, Ill.

ALNICO MAGNETS. Free List. Terry Sales Company, 1915-23 Nebraska Ave., Box 1014, Toledo 9, Ohio.

MACHINERY, TOOLS & SUPPLIES

POWER TOOLS. Build your own with Lewis Castings. Save up to 80%! Complete castings, materials and blueprints supplied for 23 woodworking and metalworking tools. Free catalog. Write today. Lewis Machine Tool Co., 3217 Union Pacific Avenue, Dept. E, Los Angeles 23, Calif.

CHUCKS. (GENUINE Westcott) Independent Universal, threaded 1½"—8 for South Bend, Atlas, Logan, Clausing, Craftsman lathes. Also other chucks to 16". Top value. Free literature. Westcott Chuck Co., 3800 Walnut, Oneida, N. Y.

DRILL GRINDER—Grinds drills to factory accuracy. Calipers with direct reading scales. Circle cutters. New Tool grinder. Lowest prices. Free literature. Factory, 811-C East 31st, Kansas City 3, Mo.

DRILL GRINDER for twist drills gives factory finish. Only $2.95. Order Dept. FD-33. Cramlall Mfg. Co., 1512 W. Slauson Ave., Los Angeles 44, Calif.

HAND SAW Handles, all sizes. Hardwood, varnished. Wholesalers, jobbers write Barney Jackson and Sons, 5025 E. Lancaster, Ft. Worth, Tex.

SEND DOLLAR for new type saw, cuts anything, spiral blade cuts in all directions. Guaranteed. Super Sales, 3124 Dodge, Omaha 2, Nebr.

MACHINES AVAILABLE for making new designs of interlocking concrete building blocks. Rex Products, Dept. 30, Piqua, Ohio.

METALS; ALUMINUM, Brass, Steel in all shapes. Catalog 10c refundable. F & H Metals, 87 Warren Street, N. Y. 7.

CONCRETE BLOCK machines, from $39.50. Catalog free. Concrete Machinery Company, 5466 Gravois, St. Louis 16, Mo.

LOW PRICE air compressor. Write for information. American Sales, Box 216, Kenosha, Wis.

WELDING—PLATING—SOLDERING

WELDER! NEW Portable Champion Special Transformer Welder; 110/120 volts, AC. 8 heat stages. Welds, brazes, solders, cuts all metals. Complete with electrode holder, helmet, rods, carbons, fluxes, cables. Also Special Flame Weld Torch. Easy to use. Full directions. Splendid for shop, farm and home repairs. Guaranteed. Only $27.50. Money back guarantee. Also resistor model, now $14.95. Magic Welders Co., 239 MI Canal St., New York, N. Y.

"POWER-WELDER" — NEW combination AC Welder-AC Power Plant. Portable, makes you independent of power lines. Gives you Welding, plus Power for tools, lights, motors . . . anywhere. Free catalog. Write Hobart Welders, Box SM-984, Troy, Ohio.

RECTIFIERS: RAMYR Selenium Platers, 10, 30, 50, 100 amp sizes. Immediate shipment. Complete line of bronze baby shoe mounts. Write for list. Hollywood Bronze Supply, Dept. 112, 1770 N. Vermont, Hollywood 27, Calif.

WELDING—A profitable trade. Learn quickly at best equipped school in U.S. Demand for trained men. Write Hobart Welding School for free catalog. G.I. approved. Box SM-986, Troy, Ohio.

"BUILD-UR-OWN" PORTABLE are welder. Save $350. Easy with Hobart Generator plus auto engine. Free instruction book. Write Hobart Welders, Box SM-983, Troy, Ohio.

OXWELD ACETYLENE Regulators with gauge $6.25. Airline Regulators $2.25. Filters 50c. Money back guarantee. Army Surplus. V. L. Wranosky, Haddam, Kan.

GUARANTEED 110/220V A.C. all purpose, heavy duty arc welders. Illustrated Literature. Williams Welding, Box 4100, Portland 8, Ore.

TRANSFORMER WELDERS, 110v. Welds ½" steel. $32.50. Morris Welding Service, 1850 C. State, Schenectady 4, N. Y.

WAR SURPLUS: New 300 ampere D.C. generators $42.50. Blackhawk Distributors, Olathe, Kan.

WELDERS FOR all requirements. Free Catalog. Write Hobartweld, Box SM-985, Troy, Ohio.

ENGINES, MOTORS

GAS DRIVE are welders. "Build-Your-Own." Portable. Get profitable jobs anywhere. Save $350 with Hobart Generator plus auto engine. Free instruction book. Write Hobart Welders, Box SM-987, Troy, Ohio.

MOTOR REPAIR Men, get our bulletins on Stator Winding Tester and AC coil winder. Motor Industries, Quincy, Ill.

FOR INVENTORS

INVENTORS: LEARN how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U.S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 83A-G District National Building, Washington, D. C.

INVENTORS—PATENT laws encourage the development of inventions. Our firm is registered to practice before the U. S. Patent Office. Write for further particulars as to patent protection and procedure and "Invention Record" form at once. No obligation. McMorrow, Berman & Davidson, Registered Patent Attorneys, 138-R Victor Building, Washington 1, D. C.

INVENTORS: THE usual First Step is to have a search of the U. S. Patents conducted, so I can report on Patentability. Write, without obligation. Patrick D. Beavers (formerly Randolph & Beavers), Registered Patent Atty., 925 Columbian Bldg., Washington (1), D. C.

INVENTORS—A Patent is a Valuable Right. Send for booklet, "Patent Protection for Inventors," outlining the preliminary steps to take to obtain patent protection. Victor J. Evans & Co., 370-K Merlin Building, Washington 6, D. C.

"INVENTOR'S REPORT" containing twenty years' experience dealing with inventions, patent applications. Little known facts like who gets patents free, getting your "patent pending" in few days. $2.00. Hamb, 66 King, Hillside, N. J.

INVENTORS: IF you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 50B, 1926 Eye St. N.W., Washington 6, D. C.

NEED HELP in making detail drawings? Consult licensed engineer, 30 years experience. F. Ogden, 18—13th St. North—Apt. 1, Minneapolis 3, Minn.

DRAWINGS, MODELS and experimental devices, of your ideas. Confidential. Shadyside Engineering Laboratory, Sunbury, Ohio.

INVENTOR'S GUIDE free on request. F. A. Ledermann. Registered Patent Attorney, 154 Nassau St., New York 7, N. Y.

PATENT ATTORNEYS

INVENTORS: LEARN how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U.S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 83B-G District National Building, Washington, D. C.

INVENTORS—PATENT laws encourage the development of inventions. Our firm is registered to practice before the U. S. Patent Office. Write for further particulars as to patent protection and procedure and "Invention Record" form at once. No obligation. McMorrow, Berman & Davidson, Registered Patent Attorneys, 138-S Victor Building, Washington 1, D. C.

INVENTORS: WHEN you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a Patent. Write Patrick D. Beavers (Formerly Randolph & Beavers), Registered Patent Atty., 924 Columbian Bldg., Washington 1, D. C.

"PATENT PROTECTION for Inventors" booklet outlines steps to take to secure patent protection for your invention. Send for copy. No obligation. Victor J. Evans & Co., Merlin M. Evans, Registered Patent Attorney, 371-K Merlin Building, Washington 6, D. C.

INVENTORS: WITHOUT obligation, write for information explaining the steps you should take to secure a Patent. John N. Randolph, Registered Patent Attorney, 219 Columbian Bldg., Washington 1, D. C.

INVENTORS. FOR "Record of Invention" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

C. A. SNOW & CO., 1-427 Snow Bldg., Washington 1, D. C. Registered patent attorneys. Literature mailed on request.

INVENTOR'S GUIDE free on request. Frank Ledermann, Registered Patent Attorney, 154 Nassau St., New York 7, N. Y.

PATENTS

INVENTORS—PATENT laws encourage the development of inventions. Our firm is registered to practice before the U. S. Patent Office. Write for further particulars as to patent protection and procedure and "Invention Record" form at once. No obligation. McMorrow, Berman & Davidson, Registered Patent Attorneys, 138-T Victor Building, Washington 1, D. C.

INVENTORS: TEST the Commercial value of your patented or unpatented inventions, quickly and inexpensively. Write for free information. Institute of American Inventors, Dept. 50-A, 1926 Eye St., N. W., Washington 6, D. C.

INVENTIONS PROMOTED. Patented or Unpatented. Write Adam Fisher Company, 582 Enright, St. Louis, Mo.

INVENTIONS WANTED

INVENTORS: HUNDREDS of manufacturers have requested our assistance in locating marketable new products. Complete information, free. Institute of American Inventors, Dept. 50-C, 1926-Eye St., N. W., Washington 6, D. C.

HIGHEST ROYALTIES — Cash. Official U.S.I.R.C. certified service. Request free Booklet "L." Universal Marketing Co., 126 Lexington Avenue, New York 16, N. Y.

SMALL INVENTIONS wanted by manufacturers. I'll help you sell your invention. Write for circular. Stanley Hall, 7829 Euclid, Cleveland 3, Ohio.

INVENTIONS PROMOTED. Patented or unpatented. Write Adam Fisher Company, 582 Enright, St. Louis, Mo.

INVENTIONS WANTED. Patented or Pending only. Inventors Exchange-C, Hartford 1, Conn.

CASH MARKETS want your ideas. Write, Hendrickson, Argyle (3), Wis.

MODELS & MODEL SUPPLIES

SHIP AND yacht model fittings; blueprints. Send 25c for illustrated catalog No. 21—listing hundreds of items. A. J. Fisher, 1002-B Etowah Ave., Royal Oak, Mich.

LEARN CONTROL line stunt flying with Sky Box Stunt cl C $3.95, Baby Sky Box Stunt cl B $3.25. F-B Models, Boulder, Colo.

BRASS GEARS and model supplies for the inventors. Send 10c for catalog. Pierce Model Works. Tinley Park, Ill.

PRECISION DIES, molds, experimental. Models, special machines. Booklet. Arizona Tool & Die, 31-E. Rillito, Tucson.

STEAM ENGINES, boilers. Catalog 25c. Anton Bohaboy, 2297 Price, Rahway, N. J.

MODEL RAILROAD SUPPLIES

MODEL RAILROADERS send fifty cents for 132 page catalog O and HO equipment. Walthers, 235 E. Erie St., Milwaukee 2, Wis.

BUILD MODEL train motors inexpensively. Piper, Box 182, Royal Oak, Mich.

BLUEPRINTS & PLANS

BUILD AN Adobe House. Plans and elevations for the construction of a modern picture-window home built with stabilized adobe brick are now available. The overall dimensions of this ranch-style dwelling, excluding a separate garage and studio, are 64x37 ft. It contains two bedrooms, a kitchen, a living room (10x30 ft.), a dining room and a nine-foot wide porch that is 44 ft. long. A wood-burning fireplace features a storage bin for wood that's stacked from the outside of the house. Price for plans are $6.00 per set; additional sets are $3.00 when ordered at the same time. Send your money and request to Fawcett Publications, Greenwich, Conn. Please ask for Plan No. 50.

SPECIFICATION & PRINTS of The First Successful Permanent Magnet Motor $10.00; plus right to make model. Send ten cents for literature. George J. Altman, 150 Broadway, New York 7.

PLANS 50c FOR 10 ft. trailerhouse, 6 ft. beadroom, 7 ft. high. L. Tweten, Box 541, Portland, Ore.

BOATS, OUTBOARD MOTORS

BOAT BUILDING Plans: Runabouts, cruisers, sail boats. Wood, plywood, and welded steel construction. Illustrated book, "Modern Designs For Boats And Yachts" $1.00. John B. Clark, Yacht Designer, 329 Kenmore Drive, Bay Village, Ohio.

FULL SIZE cut to shape patterns, blueprints. $3.75 up. Pleasure boats, to 38 feet. Illustrated "Build A Boat" catalog, 10c. "How to Build Boats" book, $1.00. Polywog Houseboat Plans, $10. Cleveland Boat Blueprint Co., Dept. A23, Cleveland 13, Ohio.

HIGH SPEED outboard motor tuning and Souping Up methods. Instructions $1.25. Excello Marine Sales, Post Office Box 71, Stratford, Conn.

MARINE FITTINGS, accessories—Thousands of items (pictured, priced)—Prompt delivery. Catalog $1.00. Marine Mart, Buffalo 7-H, N. Y.

MARINE ENGINES, new, used. Conversion supplies, hardware, propellers, shafting. Catalog B. Lind Supply, Coldwater, Mich.

MARINE CONVERSIONS for Ford and Jeep engines. Catalog 10c. Lehman Manufacturing Company, Department C, Newark 2, N. J.

NEW, USED, rebuilt marine motors. Marine conversions, fittings. FREE catalog. Stokes Marine Supply, Dept. 21, Coldwater, Mich.

BOAT PLANS by professional naval architects. All sizes and types. Free circular. Westlawn Associates, Montville 4, N. J.

BOAT PLANS, kits—See display advertisement page 159. Marine Mart, Buffalo 7-H, N. Y.

USED OUTBOARD motor parts. Outboard Exchange, 1194 Remsen Ave., Brooklyn 12, N. Y.

SNIPE CLASS sail boat frame kits. Varalyay Boat Works, Gardena, Calif.

BELLY TANKS. Free Picture. Anzio Boat Co., 89T, Merced 7, Calif.

35MM ENLARGER

An MI project of especial interest to the minifan. This particular enlarger was built around a Leica though any other miniature can be used just as well. The drawings show very plainly all the parts needed to make this versatile little job. It features an arrangement that permits the film to be advanced without any chance of your favorite negatives being scratched as the condenser is lifted out of the way to advance the film. When lowered, the weight of the condenser serves to keep the film perfectly flat and in the focal plane. Blueprints and descriptive text are available from the MI Reader Plan Service, Fawcett Building, Greenwich, Conn., for 50c. Ask for Plan No. P-4.

BUILD-IT-YOURSELF

BUILD CONCRETE Block Machines, Portable Saw Mills, Shop, Home, Farm Machines. 183 Plans. Catalog—Handbook Free. Nichols Equipment Co., Dept. 1407, Purvis, Miss.

BUILT-IN KITCHEN Cabinets—$1.00 brings detailed plans and specifications showing construction methods. Will fit any kitchen. Thombert Co., Box 447I, Newton, Iowa.

"CONCRETE BLOCK Homes." 32 page booklet: drawings, instructions on how to build. $1.00. H. C. Lightfoot, Civil Engineer, Richboro 25, Penna.

MAKE YOUR own handy lightweight Concrete Blocks quickly with new Blockmaker. Circular stamp. Manual 25c. Peerless, New Lenox 3, Ill.

BUILD CONCRETE blockmaker, motor or hand operated. Simple, inexpensive. Practical. Write. Clyde Lee, Mountain View 9, Okla.

COPPER AND Brass Materials. Complete line for Craftsmen. Catalog Free. Groundmaster Company, Div. M, Boulder, Colo.

HAND-MADE NOVELTIES

MAKE YOUR own jewelry! All types of findings, plastic and metal; cameos, beads, shellkits, illustrated catalog 20c. Hobby Art, Dept. 2, P.O.B. 276, New York 18, N. Y.

WHITTLER'S SUPPLIES—readi-cut blanks, special woods, knives. Catalog 10c. "Old" Whittler, 1402 Charles, La Crosse, Wis.

HOME CRAFTSMEN

28 LAWN ORNAMENT patterns 25c. Other patterns: 15"-20" high; Dutch girl; Dutch boy, pirate, bull terrier, Mexican girl, Mexican boy, dwarf, penguin, flower girl, 10c each; 3 for 25c. 25 novelty patterns 30c. All 62 full size patterns $1.0 postpaid. Strother, Box 383-NF, Belington, W. Va.

LEATHERCRAFT CATALOGUE and textbook. America's finest. The Leatherworker's Bible. Mail postcard for details. Artcraft Leather, Dept. MI-9, 271 Twelfth St., Oakland 7, Calif.

SHELLCRAFT! MAKE beautiful seashell jewelry. Profitable hobby! Large illustrated catalogue! Supplies, instructions, 10c postage. (Buy direct from manufacturer.) Pace's, Box 279M, Bradenton, Fla.

LEATHERCRAFT! COMPLETE stocks of leathers, tools, supplies. Immediate shipment. Free catalog. Kit Kraft, 3203 W. Washington Blvd., Los Angeles 16, Calif.

LAWN CHAIRS, toys, novelties, garden figures, furniture, etc., 63 popular plans with full size patterns, $1.00. Mastercraft 9X, 7041 Olcott, Chicago 31, Ill.

PAINT, VARNISH brushes. For professionals, craftsmen, hobbyists. Catalog free. J. Rosenstein Company, P. O. Box 64, Brooklyn 11, N. Y.

JIGSAW PATTERNS—Full Size, New, Original Designs, Illustrated Folder 10c. Jeanens Patterns, P.O. Box 141 D-1C, Omaha 7, Nebr.

NEAT, LONG wearing half soles easily made, applied, around 6c pair. Instructions 50c. Henry Estberg, Waupaca, Wis.

KNOCKDOWN CEDAR chest also lumber and veneers. Giles, Kendall Company, Brownsboro, Ala.

BIG PROFITS from small bits of wood. Write Dollhouse Novelties, 19 Baker Street, Saugus, Mass.

$46 FROM SQUARE Foot Plywood. Jigsaw necessary. Write, Woodarts, X-59, Bridgewater, Mass.

PLASTICS

LUCITE, PLEXIGLASS. All size sheets. Cost square foot (12" x 12") 1/16, $1.06; 1/8" $1.25; 3/16" $1.53; 1/4" $1.80; 5/16" $2.23. Include 10% postage. Almac Plastics, 230 Fifth Ave., New York 1, N. Y.

BOOK—ILLUSTRATED, Fabricating, forming Lucite. Simplified methods, projects. $1.00 P.P. Ideas-C, 11379 Ventura, North Hollywood, Calif.

CAMEOS, JEWELS, Sequins, Beads, Craft Kits, Jewelry Findings, Catalog Free. J & M Novelties, Box 464-M, Griffith, Ind.

PLASTIC—SHEETS, Rods, Tubes, etc. Free List. Plastic Supply Co., 2618 St. Louis Avenue, St. Louis 6, Mo.

ARCHERY

BOWS—ARROWS, write headquarters for Archery equipment. Quality products. Popular prices. Catalog 10c. Large illustrated hand book instructions, aiming and shooting, 50c. Archery, 617-F So. State, Chicago 5.

SPORTING GOODS, FISHING TACKLE, GUNS

CLOSING OUT:—400 Antique Firearms; 35,000 Indian Relics, Coins, Confederate Money, Cartridges, Swords, Fossils, Powder Flasks, Flintlocks, Carbines. Illustrated Catalog 25c. Heike, Wenona 7, Ill.

CATFISH GOBBLE new powder blood base. Guaranteed. Two large bags basket fish hooks free. Postpaid $1.00. Buss Mfg. Co., Lanark, Ill.

SHOTGUNS, RIFLES, Revolvers. Over 500, modern, obsolete, also cartridges. List 10c coin. Ed Howe, 28 Main, Coopers Mills, Me.

"SHOTGUNS," "RIFLES," "Handarms," "Ammunition," "Rods," "Reels." List 10c. Rudolph's, Atchison, Kan.

5,000 BARGAINS, FIREARMS, binoculars, war relics. Catalog 40c. Smith Armory, Runnemede, N. J.

SEND 10c FOR list 100 used guns. Frayseth's, Willmar, Minn.

FOR SPORTSMEN

25% DISCOUNT ON Tents, Air Mattresses, Swedish Kerosene Stoves, Carbide Lamps, Army Blankets, Cots. Catalogue L. Alan-Clarke Co., 96 Chambers, New York City.

AMAZING BUCK Lifetime hunting knives. High-carbon steel, 5-inch blade cuts through bolt. Handmade. Beautiful. $7.00. Williscroft, Box 784, Conrad, Mont.

FINEST GLASS eyes; taxidermy supplies. Catalog free. Elwood Company, Department 236, Omaha 2, Nebr.

FIELDGLASSES, TELESCOPES, MICROSCOPES, ETC.

POWERFUL, PORTABLE, giant terrestrial telescope with tripod. Objects one mile distant appear only 150 feet away and 1,000 times larger in area. $10.00. Lenses and instructions for making this telescope $2.50. Instructions alone 10c. Giant 100X astronomical telescope with 6 ft. tripod $15.00. Lenses and instructions for making this telescope $3.00. Instructions alone 10c. Lens kit for making 200X astronomical telescope $4.00. 400X $6.00. Suffolk Science Service, Manorville, N. Y.

BUILD EXTRAORDINARY reflecting telescope—Principle of 200" mount palomar. Complete optical parts including fully polished and aluminized mirror, eyepiece lenses and flap. 3" (40 power) $6.00; 4" (60 power) $10.00; 5" (80 power) $15.00. Simple instructions. Sharp, clear definition guaranteed. Also spotting and bird use. Thousands satisfied makers. Do not confuse with inferior items offered at any price. Bulletin 10c. Ross, Section A, 68 West Broadway, New York, N. Y.

REFLECTING TELESCOPE kit—3" diameter mirror—aluminized diagonal—eyepiece 25X-50X-100X-200X powers. All parts to complete in few hours interesting work achromatic planetscope ready view hundreds fascinating celestial wonders. $5.00 postpaid. Microscope lens kit, 50X to 800X, $2.00. Postcard brings plans—list outstanding optical values. Pfleegor Optical Co., MX-9, Sunbury, Penna.

AMATEUR TELESCOPE Makers Supplies, Ramsden Eyepieces, Combination Eyepiece and Prism Holders, Mirror Cells, Finders, Equatorial Mountings, Prisms. C. C. Young, 25 Richard Road, East Hartford 8, Conn. Send for price list.

MAKE PROFESSIONAL sized telescopes. Reflecting Kits from 4" to 12½" Pyrex or Plate Glass. Prisms, Lens Grinding Machines. Send for catalogue. Wolf, 354 Montgomery St., Brooklyn 25, N. Y.

GOVERNMENT SURPLUS, terrific bargains, telescopes, binoculars, lenses, prisms, send stamp for catalogue. R. Jaegers, 123-26 Rockaway Boulevard, South Ozone Park 20, N. Y.

ASTRONOMICAL TELESCOPES, $65, $130, $285 and up. Microscopes, binoculars. Buy, sell, repair. Lists 10c. Rasmussen-Reece, Amsterdam, N. Y.

TELESCOPES, BINOCULARS, Microscopes—big bargain catalog free. Brownscope Company, 24 West 45th Street, New York.

BINOCULARS, FIELDGLASSES, Telescopes, Watches, Diamonds, Guns. Schweer's, Donnellson, Iowa.

BIRDS, SMALL ANIMALS, OTHER PETS

GOLDEN HAMSTERS make swell pets; diseaseless, odorless. No body parasites. Arlington Hamstery, 501 Morningside Road, Jeannette, Penna.

GOLDEN HAMSTERS. A profitable sideline, fascinating hobby, or unusual pets. Literature free. Glenlaw Farm, Box 214, Bryantville, Mass.

GOLDEN HAMSTERS $2.75 Pair. Chameleon 25c. Animal Catalogue 10c, Current Bulletin 5c. Quivira Specialties, Topeka, Kan.

RAISE GUINEA Pigs. Make money at home. Big demand. Booklet free. Taylor, Box 426E, Hapeville, Ga.

BEAGLES, RABBITHOUNDS. Choice quality. Puppies. Trial. Garrett Yinger, Hellam, Penna.

SEE GOLDEN Hamsters ad on page 34. Shows picture of Hamster.

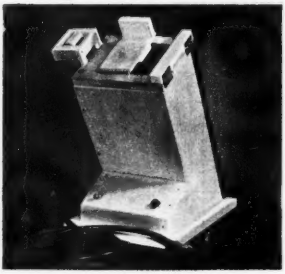
DAIRY GOATS

ALL ABOUT goats and goat milk in big, illustrated monthly magazine. Sample copy 25c. Special introductory year subscription only $1 (regular $2 a year). Booklet, "Primer for Goatkeepers," free on request. Dairy Goat Journal, Dept. 817, Columbia, Mo.

HORSE TRAINING

"HOW TO Break And Train Horses"—A book every farmer and horseman should have. It is free, no obligation. Simply address, Beery School of Horsemanship, Dept. 1159C, Pleasant Hill, Ohio.

JIFFY SLIDE PRINTER



This miniature positive printer will enable you to print your 35mm or Bantam negatives as positives for nearly lifesize projection. It is made of plywood and the construction is unusually easy to follow; can be built at a cost of less than $2.50. Blueprints and text are available from MI Reader Plan Service, Fawcett Bldg., Greenwich, Conn., for $1.00. Ask for Plan No. P-5.

RABBITS

RAISE RABBITS, market provided. Breeding stock furnished on Production Pay Plan. Literature 25c, with hutch plans $1. Hansen's Rabbit Institute, 1347 Miller Avenue, Salt Lake City 6, Utah.

RAISE CHINCHILLA rabbits. Year-round money-makers from furs, meat, breeders. Experience unnecessary. Write today. Willow Farm, Sellersville 48, Penna.

$250.00 MONTHLY. RAISING Angora Rabbits. Particulars free. White's Rabbitry, Newark, Ohio.

$50 WEEKLY OUR plan raising Angora rabbits. Associated Angora Breeders. Stanton, Calif.

WRITE FOR descriptive circular "Angora Wool Growing." House of Angora, Springfield, Ill.

REAL ESTATE, FARM LANDS

LOTS $300—CONVENIENT payments. California's finest garden section. On Morro Bay's scenic shores. Wonderful fishing, hunting, boating, bathing. Fertile soil, softest water, temperate climate, congenial community. Free literature. Richard Otto, Dept. T, San Luis Obispo, Calif.

RAYBURN'S OZARK guidebook, Eureka Springs 1, Ark. For homeseekers, tourists. 236 pages. $1.00.

PERSONAL

FEET HURT? Try Dr. Barron's New Foot Cushions if you suffer from metatarsal callouses, corns, sore heels, weak arch foot pains. Like Walking on a Pillow! Soft, Spongy, Ventilated. Fits all shoes. Cushions and relieves your arches and entire feet from heel to toes. Dr. Barron says: "Wonderful for tired aching feet! Makes walking or standing a pleasure." Send only $1.98 for a pair, or C.O.D. plus postage. State shoe size and if man or woman. 30-day Trial Guarantee. Money back if no blessed relief. Ortho, Inc., 2700 Broadway, Dept. 6-KC, N.Y.C. 25.

HOW YOU Can Find Out! Information discreetly developed. Any matter, person, problem, anywhere. Personal-Business assignments, representations undertaken. Nationwide. Officially licensed, bonded service. Established 1922. Reasonable. Confidential. William Herman, 170 Broadway, New York.

UNIFORMS, SWEATERS and jackets made to order in all sports for schools, clubs, teams and individuals. Send for free catalog. J.S. Sporting Goods, 2014—61 Street, MO Dept., Brooklyn 4, N. Y.

SWAP NECKTIES! Send us 2 to 6 and $1.00. Receive same number different handsomely cleaned. Collegiate Tie Exchange, Box 84, Friley Ames, Iowa.

BALDNESS—CAN it be prevented? Booklet absolutely free. Write. Vanguard Research Reports, 3009-I Military Road, N. W., Washington 15, D. C.

WANT AN apartment? I found plenty. Plan works anywhere. Send $1. M. Iddings, 1589 Campus Rd., Los Angeles 42, Calif.

"INTERESTING MAILS," 25c, will keep your mail box full for three months. Bentz, Jr., Chatawa 41, Mass.

ADVISOR'S ANALYSIS. Personal Letter. $1.00. Gordon, 116 So. Grant, West Lafayette, Ind.

JEWELRY

ZIRCONS, LOOSE. Genuine Siam Imports. Pure white. Special: 3 Genuine Zircons, from ½ kt. to 1½ kts. 3 gleaming gems complete $6.00 tax included. We can supply Zircons in all sizes and mountings of all types. Send order or write for details today. B. Lowe, Dept. MI, Holland Bldg., St. Louis, Mo.

COSTUME JEWELRY Supplies; Pins, Earscrews, Sea Shells, Plastic Discs, Ear Clips, Floral Stones, Chains, Clasps, Wire, Boxes, Bracelets, Bow Knots, Catches, Plexiglas, Cements, Dies. Write for free catalogue. Dept. C, Philadelphia Badge Co., 1007 Filbert St., Philadelphia 7, Penna.

JEWELRY SUPPLIES. Rhinestones, moonstones, simulated pearls, cameos, earwires. Introductory assortment $3.50. Instructive listing 10c. Myles-Herber, 1360-C Hicks, New York 67.

JEWELERS' FINDINGS, supplies. Latest catalog, 10c. George Sussen, 151 Nassau Street, New York 7

MINERALS—PRECIOUS STONES

"GENUINE" DEEP red Arizona Rubies (Garnets). Send quarter for packet. Mineral Specimens Co., Box 2631, Phoenix, Ariz.

"ROCK COLLECTING" Information. Demand. Science. Dept. C, 2770 Dale, St. Paul 8, Minn.

BEAUTIFUL CALIFORNIA gold nuggets, $1.00 each. Mountain Gold, Box 604, Stockton, Calif.

PETRIFIED WOOD. 12 cubic inches $2.00. Flossie Lee, Mountain View 5, Okla.

TOBACCO

PIPE SMOKERS—make your pipes. Instructions, stem, drilled briar, complete kit, prepaid $1.75. Free literature. Smokecraft, Box 44, Ampere, N. J.

OLD GOLD WANTED

HIGHEST CASH for old, broken jewelry. Mail gold teeth, watches, rings, silverware, diamonds, spectacles. Satisfaction guaranteed. Free information. Rose Smelting Co., 29-K East Madison, Chicago.

MISCELLANEOUS

MEDICAL LABORATORY technicians in great demand. We train you in your own home, in your spare time. Also home study course in general chemistry. Catalogue free. Imperial Technical Institute, Box 973-A, Austin, Texas.

BUTTERFLY BROOCH pin 2" diameter. Real natural tropical butterflies skillfully mounted under glass. Makes excellent gift, curio $1.00 postpaid. American Butterfly Co., 3457 Park Heights Ave., Baltimore 15, Md.

WASHINGTON AND Lincoln Plaques, unpainted, $1.00 pr.; painted, $1.50 pr.; molds, $3.50 ea. Tighe Artcraft, 2606 Elliot Ave. So., Minneapolis, Minn.

PANNING GOLD—Free instruction booklet—catalogue mining books—supplies. Old Prospector, B-154, Dutch Flat, Calif.

SUN & FUN Magazine—Hobby tips, cash ideas; 10c. Pennebaker, Box 141, San Marcos, Tex.

"HOW TO Win Prize Contests." Amazing Booklet $1.00. Box 28EL, Jackson Heights, N. Y.

FIFTY ASSORTED Ozark scenic postcards. $1.00. Rayburn, Eureka Springs 1, Ark.

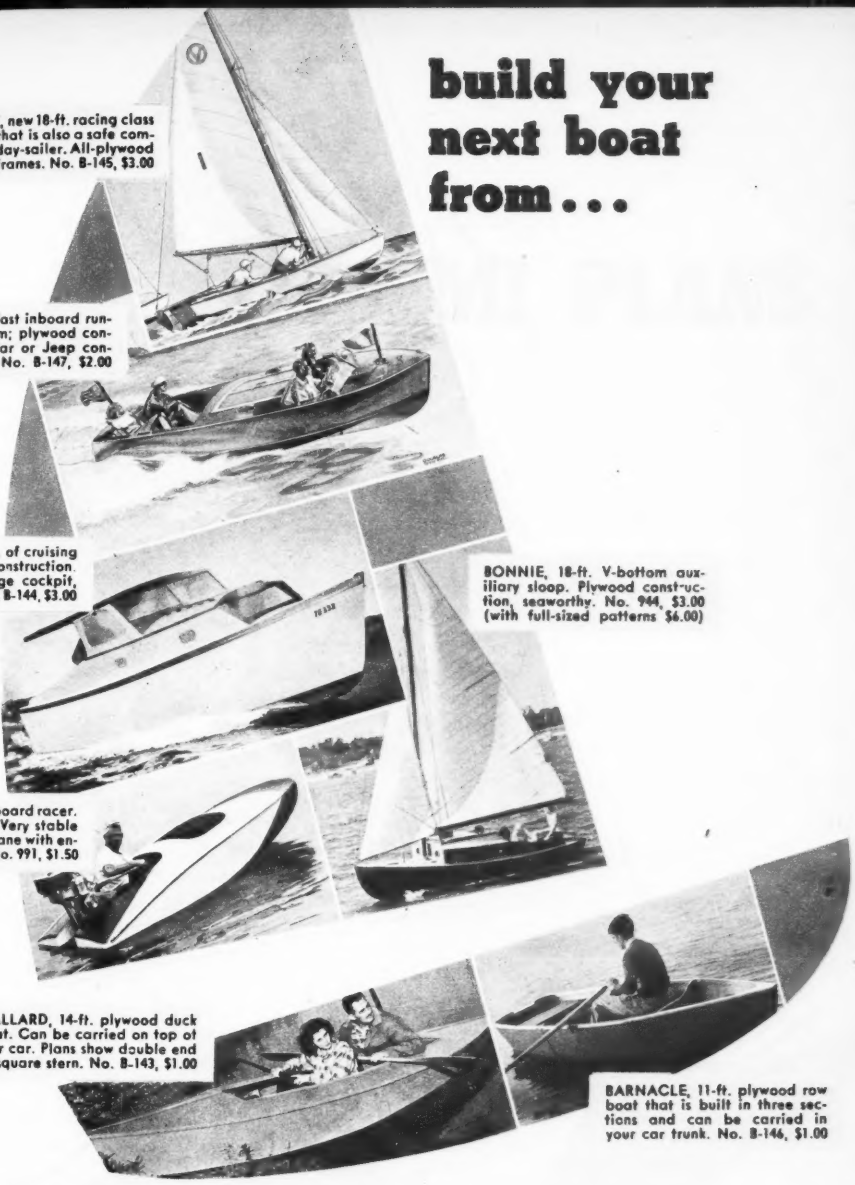
TREASURE FINDERS. Free Booklet. Fisher Research Laboratory, Palo Alto, Calif.

SQUARE DANCE instructions. Calls 25 sets. $1.00. Rayburn, Eureka Springs, Ark.

WANTED MISCELLANEOUS

ANYTHING OF value. Paul, 207 North Fifth Street, Springfield, Ill.

build your next boat from . . .



VICTORY, new 18-ft. racing class sailboat that is also a safe comfortable day-sailer. All-plywood hull and frames. No. B-145, $3.00

COMET, 16-ft. fast inboard runabout. V-bottom; plywood construction; regular or Jeep conversion power. No. B-147, $2.00

CRUISE-MATE, 19-ft. of cruising comfort. Plywood construction. Sleeps two, has large cockpit, outboard power. No. B-144, $3.00

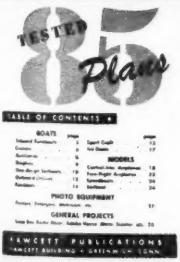
BONNIE, 18-ft. V-bottom auxiliary sloop. Plywood construction, seaworthy. No. 944, $3.00 (with full-sized patterns $6.00)

TORPEDO, 13-ft. outboard racer. Fast, easy to build. Very stable plywood hull. Will plane with engines above 10 hp. No. 991, $1.50

MALLARD, 14-ft. plywood duck boat. Can be carried on top of your car. Plans show double end or square stern. No. B-143, $1.00

BARNACLE, 11-ft. plywood row boat that is built in three sections and can be carried in your car trunk. No. B-146, $1.00

MECHANIX ILLUSTRATED
PLANS CATALOG



. . . and

If you didn't find what you're looking for above then you have 30 more designs to choose from by sending a 3 cent stamp for the latest MI plans catalog, which contains models, photo equipment, motor scooters and other projects of general interest.

Address all orders to:

MECHANIX ILLUSTRATED Plans Service
Fawcett Building, Greenwich, Connecticut

PLAN No. _____

Enclosed is $..... Please send me the plans listed above.

Name .....

Street .....

City ..... State .....

PLEASE PRINT CLEARLY IN PENCIL!

IN AN F-80 BUILT FOR TWO

THIS is the TF-80C. Like its fighter counterpart, the F-80, it is fast, sleek, jet-propelled. But there is one important difference. *The TF-80C is a two-seater!* It's a trainer-fighter (TF) — the Air Force's first "jet" fully equipped for both instructor and student.

The new "Shooting Star" trainer will help speed jet training for Aviation Cadets. Instead of the usual "build up" in propeller-driven fighters, the student will be able to begin jet training as soon as he completes basic training. It means a safer, more interesting training program.

The TF-80C is powered by the same engine and has the same general features as the standard F-80B. The fuselage, however, is three feet longer and contains two completely instrumented cockpits. The instructor sits in the front seat, may switch off the dual controls in the student's cockpit at any time.

Young men who choose careers in the U. S. Air Force share in the training advantages of projects such as this. You'll have a chance to learn more of these benefits on Air Force Day — September 18.

Attend the Air Force Day events in your community or at your nearest Air Force Base. It will be a good opportunity to find out about the Aviation Cadets. Learn how you can qualify and make an appointment to take your examinations for pilot training.

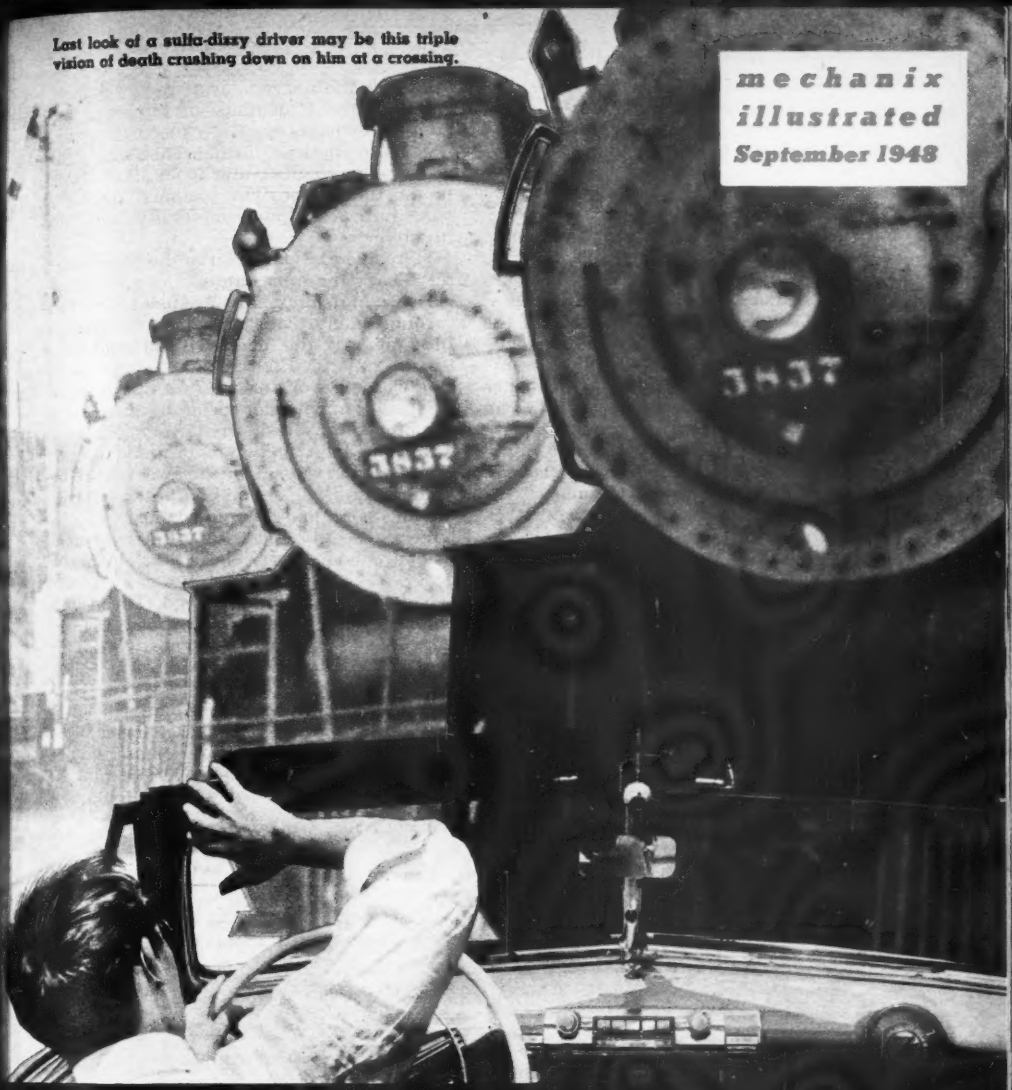
U. S. Army and U. S. Air Force Recruiting Service

★

AIR FORCE DAY IS SEPTEMBER 18, 1948

★

AIR POWER US AF IS PEACE POWER



Last look of a sulfa-dizzy driver may be this triple vision of death crushing down on him at a crossing.

mechanix illustrated
September 1948

The "Miracle" Drugs Can Kill You

By Donald G. Cooley

THE man was turning to stone.

Lime deposits were hardening parts of the patient's muscle tissue. Various organs also were riddled with lime, one of the bone-making elements. The man lost weight. He was nauseated, refused food and grew extremely weak. He was petrifying right before the eyes of the astonished doctors.

When the doctors collected all the clues, the "stone-man" mystery was absurdly simple. The patient had heard that massive doses of Vitamin D are sometimes used in treating arthritis. So, on his own initiative,

he had been stuffing himself with tremendous doses of the vitamin every day for more than a year. Vitamin D affects the distribution of lime in the body, and the overwhelming doses had caused deposits that nearly killed the patient.

Death lurked in a chemical that ordinarily does nothing but good to the human body. In many common drugs that everyone but the doctors regard quite casually there are dangers as grim as that overdosing of Vitamin D. Particularly is this true of the glamour girls of medicine—sulfas, penicillin, streptomycin and all the other "wonder drugs." These are miracle medicines indeed, but, like a .45 compared to a cap pistol, the possibilities of a kickback are vastly increased. Doctors are increasingly concerned over the price some of us may have to pay for "miracle" treatments.

The pioneer among wonder drugs was sulfanilamide, one of the first sulfa compounds. For some time it performed its genuine miracles before anyone noticed disturbing reactions. Then doctors found that the new drug was disrupting to delicate muscle-and-eye coordination. Some driving accidents were charged to sulfanilamide intoxication. Until recently, Air Force pilots were grounded for five days after taking any sulfa treatments.

Newer sulfa compounds are less toxic but are still far from being completely harmless. Most sulfas have a malicious affinity for the nervous system. Dr. Sam C. Little of the University of Michigan has cited many cases of sulfa-caused stammering, hallucinations, incoherence and general wacky conduct that looks like lunacy to the uninitiated. For instance, during a sulfa haze a brilliant university professor insisted:

"I'm an equation. You're the denominator. That's the numerator."

Death in its most sinister guise stalks you through many drugs that lash out frightfully against the body's blood-manufacturing organs. Richard will serve as a tragic case history of this rare but dreaded complication. Under drug treatment his symptoms improved remarkably. For some weeks he kept feeling better and better. Then, almost overnight, he was grappling with death. Drug action had put his blood-making bone marrow out of business. His white cells—those incessant, quiet workers who are continually destroying invading germs while we go about our daily affairs—had practically disappeared. The drug's blood-wrecking trait had stripped Richard of defenses against the most ordinary germs. Heroic measures were of no avail. He died of a sweeping infection.

Streptomycin, newest wonder drug to come into wide use, is prized because it attacks infections caused by germs immune to penicillin. Developed by Dr. Seldon A. Waksman from soil organisms, streptomy-

Wonder drug's kickback can upset the "cured" pilot's fine judgment and kill him in a sudden crash to earth.

Sulfa tablets did work a miracle to save this blood-clad GI, sole survivor of a blasted half-track in Tunisia.

cin has shown the heartening possibilities of chemical attack upon tuberculosis and other serious diseases that stubbornly resist the magic of penicillin. Enough streptomycin case histories are now on hand to suggest that the drug had better be used amply and in a hurry, or not at all. Long-continued use has shown that streptomycin centers an attack upon the nerves of hearing.

Some cases of permanent deafness have been reported from its extended use. More often, the drug-intoxicated patient acquires a feeling of "overshooting the mark" as Dr. Walsh McDermott describes it. His sense of balance is affected with a peculiar kind of dizziness. If he reaches for a door knob, he feels that his hand pushes three or four inches through the door. If he turns over in bed he feels that he is rolling out. For long periods the drug may make it impossible to walk a straight line.

More threatening to humanity at large, the healthy as well as the sick, is the possibility that widespread use of wonder drugs may help new types of disease germs to grow immensely tougher and more threatening than those we now have to fight. The disturbing factor is bacterial resistance. It works like this: A drug given for an infection destroys practically all offending germs except a few odd tough ones that naturally resist the drug or put on some kind of armorplate against it. With the weakling germs out of the way, the tough ones multiply prodigiously. The drug that seemed to cure you no longer does any good. For now you are populated with a highly selected strain of bugs that laugh at the drug.

Germ resistance to streptomycin can develop with astonishing speed—in a matter of 24 hours. That is one handicap to the drug's use in tuberculosis. Too many histories are like that of Archie, who had a fairly advanced case. Streptomycin brought phenomenal improvement. His fever dropped. X-rays showed that affected lung areas were receding. But with victory in sight all the [*Continued on page* 148]

WACKY GAGS ARE BACK!

Don't Light that cigar!

Sure, it's the same old gag—it'll blow up in your face. Practical jokers are riding high again and gag-gadget production is booming.

Tricksters are beaver-busy making life uncomfortable for unsuspecting souls. Laughter has become a serious business for the gag manufacturers who expect to sell millions of gimmicks this year—enough laughs to be heard from coast to coast. Enough laughs to shovel in greenbacks from those same geographical locations, too.

Oops! Watch out for your eyebrows—that match isn't safe either! •

"No soap, dear?" joker Harry asks his wife. "Here's a new brand I just bought for us to use. I want you to try it, darling."

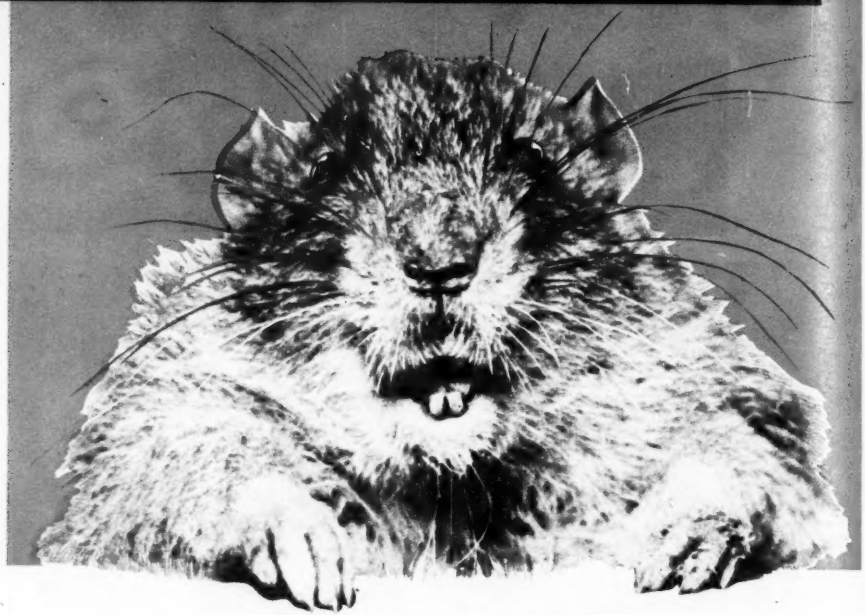
lmost a mouthful. Practical joke ctim, left, didn't know spoon ends when lifted. Right, tightly acked gift turns into a whirl of pressed paper balls flying crazily.

"Snakes Alive!" No, they're dead as coiled wire can be. Right, Oscar peeked in tube and got a painless shiner.

Unsuspecting, Darling washes her hands dreamily and then starts on her face. Birdbrain Harry stands behind the door giggling over his wife's fate.

"I'm all black!" she shrieks. "Oh Harry, not one of your gags again?" Lady, that's what you get day after day for marrying a practical joker.

WANTED FOR MURDER:



THE RAT

This criminal-at-large has been responsible for more deaths than all the wars in the history of civilization.

By Edward Frank Allen

ONE hundred and fifty million murderers rove your alleys, cellars and farms!

This loathsome horde of rats spoils more than $200 million worth of food each year. And in bitter payment, leaves behind a trail of death from bubonic plague, typhus, ratbite fever, food poisoning, tularemia and rabies. What food the rat doesn't eat, he contaminates.

Even if you've never seen a rat, there's one in your budget. You pay approximately $4 a year for the food he spoils and the attempt to control him. And you're lucky there aren't more rats to swell the bill because theoretically one pair of rats can breed a progeny of 350 million within three years. The female bears from six to 22 in a litter as often as six times a year. Only through constant vigilance can the rat population be kept down.

There is now at least one rat for every human in this country. The true figure is probably a bit higher because the ratio on farms is thought to be two per person. A few years ago a rural county in Texas conducted a rat-killing campaign. In less than six weeks the 35,000 people in the community turned in 154,000 rat tails—better than four per person. Taking all farms into consideration, these rats cause

an average loss per year of over $10 a farm.

The common house-rat in this country is the Brown or Norway rat—a filthy flea-bitten creature often covered with running sores. He measures about 18 inches long and isn't a bit frightened of you. In fact, he is so used to living with men that the smell of a human is the best rat lure you can find.

Unlike his two-legged namesake, the rat is not a physical coward. He'll attack humans when he's hungry, cornered—or just plain ornery. Last year in New York City alone, 423 persons were badly bitten by rats. In the first three months of this year, 94 rat bites were reported. These rodents have been known to kill and eat neglected babies and there are cases on record of able-bodied men suffering the same fate after being attacked by a swarm of hungry rats.

The size of the victim doesn't seem to matter. Three elephants once had to be destroyed by the German animal dealer, Karl Hagenback. Rats had gnawed at their feet and crippled them. Farmers tell of many instances of rats killing young lambs and chewing at the bellies of fat swine. On one farm, 600 chicks valued at 20 cents each were killed in one night by rats.

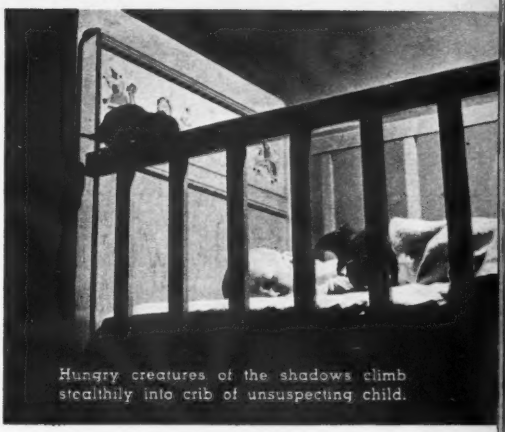
Even when the rat himself is the victim, he's a dangerous creature. Rats like garbage and find most of their food in garbage cans and refuse piles. Thus, they can easily become infected with trichinosis. Pigs gobble up rats whenever they can catch them and even though a farmer may keep his pigs on a garbage-free diet, the animal can contract the disease from the rat. Infected pork is the major transmitter of trichinosis to humans.

Rat extermination is no longer considered the problem of the individual home-owner or farmer. The pestilence spread by these creatures affects the whole nation.

During the war years, in the interest of speedy turn-arounds, ship fumigations and other control measures were neglected. Rats could easily slip ashore from ships that had visited tropical or Mediterranean ports. The germs of bubonic plague or typhus might easily have been carried into the country.

Now regulations have tightened up again and every trans-oceanic vessel that arrives in port is cleared of its crew and thoroughly gassed with hydrocyanic acid, one of the most effective fumigants. It not only kills the rats themselves but also the germs they carry.

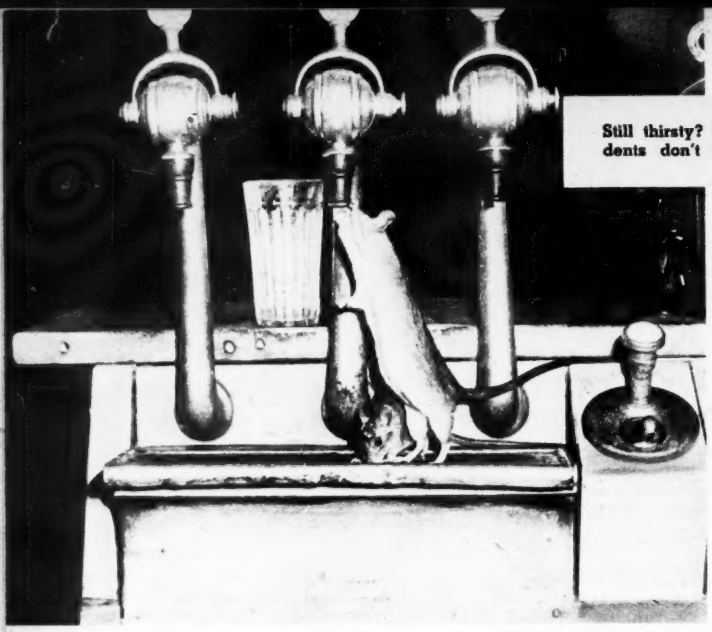
World War II provided rats with a



Hungry creatures of the shadows climb stealthily into crib of unsuspecting child.

Sharp teeth of vicious rat-murderers can easily puncture the skin of sleeping baby.

Agonizing screams warn parents that this infant has been critically bitten by rats.



Still thirsty? What these germ-ridden rodents don't eat, they spoil for others.

comparatively safe interlude of uninhibited breeding. But it also produced two deadly poisons to combat the great increase —ANTU and 1080.

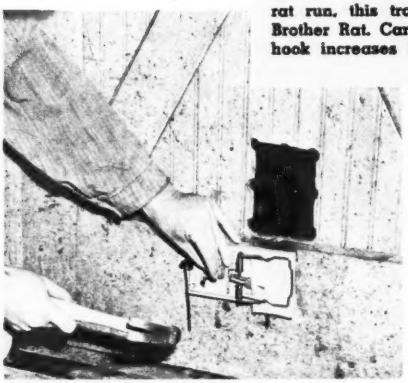
Prior to the war-time discovery of these poisons, arsenic, strychnine and red-squill were the most popular concoctions used to kill rats. Arsenic and strychnine always carried with them the danger of accidentally striking the wrong party—human or otherwise. Red-squill is peculiarly suited as a rat killer because it strikes only rats. Most animals, upon eating this vegetable poison imported from the Mediterranean, become violently ill. But rats are so constructed that they cannot vomit and the poison remains within them.

With the war scarcity of red-squill came the discovery of the new poisons. ANTU, short for alpha-napthyl-thio-urea, was produced at Johns Hopkins by Dr. Kurt Ritcher. It is effective only on Brown rats—the species most common in America. Domestic animals and humans seem to be able to swallow sizable quantities without ill effects. For the ordinary household ANTU and red-squill are effective enough.

But 1080 is decidedly another matter. Named 1080 because it was the 1080th experiment made during the search for a substitute for red-squill, this poison is one of the deadliest known to man. It strikes at all animals, including the human being. One-fiftieth of an ounce is fatal and there is no known antidote. The poison leaves no trace of what caused the death and has already been used in detective stories for the "perfect crime." But 1080 will only be used for large scale extermination and then with close supervision.

Lethal as these two new rodenticides may be, they cannot do a good job if only a

Got 'im! Nailed on wall over a rat run, this trap snapped on Brother Rat. Cardboard on bait hook increases trigger surface.



These two filthy rodents could theoretically breed a family of over 350 million rats within three years.

hit-or-miss program is followed. A few years ago the custodians of the cafeteria in a Mississippi college discovered that the building was infested with rats. Using red-squill, a successful campaign against the rats drove them from the campus. But the following year they returned in even greater numbers. It was decided to experiment with 1080. Three gallons of a water solution of 1080 was placed in cups around the cafeteria. Seventy-five rats were killed the first day. The second day's bag was 23. The cups were used for a few weeks and at the end of that time 112 rats bit the dust—the whole colony was eradicated and the school hasn't been bothered by rats since then.

Department of Agriculture officials estimate that the rat has killed more human beings than all the wars in history. Millions of people down through the ages have died in rat-borne plagues. Unless careful control is practised unceasingly, the danger of new plagues will always threaten.

So watch out for a hunted criminal—the rat. He's wanted for murder by generations of civilized people. Your reward for his extinction will be your own good health. •

Six times a year, Mamma Rat may bear a litter of 6 to 22 babies. But if Pappa's hungry, he'll eat 'em.

Good Rats. This entire rat community was wiped out in a matter of days by 1080, a new deadly poison.

Eye Surgery's Newest Marvel

New technique in transplanting living eye tissue promises sight for 10,000 of America's blind.

Knife for cutting eye surface has a tiny, circular blade (lower end). Utmost skill is needed in use.

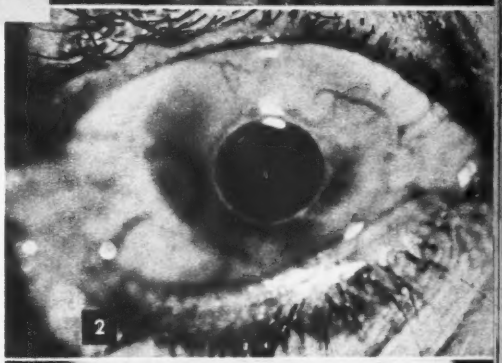
IN the operating room of a celebrated New York hospital a surgeon bends over the patient lying before him.

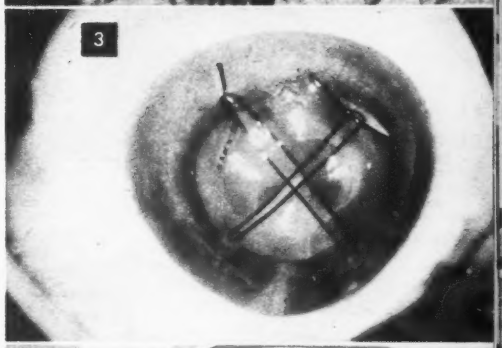
The patient's eyes are wide open; he is awake. But he cannot see the figure in white nor can he see the powerful lights suspended above him. Horny cataracts have grown over the front of his eyes and he is blind.

1 This eye blinded with a cataract belonged to a 24-year-old girl. Photo was taken shortly before she was submitted to a cornea transplant operation.

2 She sees again! Here is the same eye a short month after the operation. The opaque cornea has been removed and a clear tissue has restored sight.

3 Photo of a pig's eye immediately after a similar operation. Tissue has been "planted" and tiny stitches hold it until it grows firmly in place.





Carefully an anesthetic is applied to one eye. From the sterilizer the nurse takes a small instrument resembling a machinist's circular punch. Its cutting end carries a small circular blade of infinite sharpness.

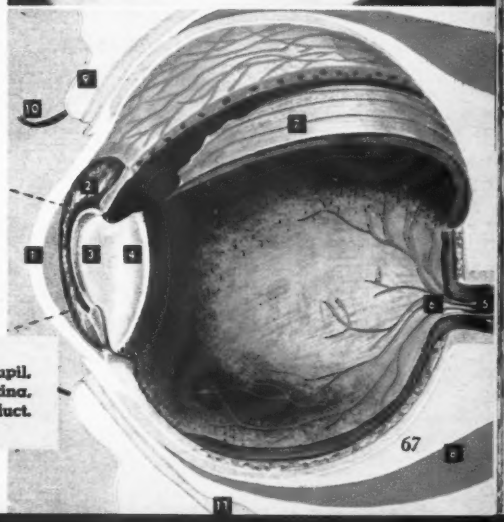
The surgeon delicately places the blade against the center of the eye. The nurses tense. A slip, the slightest quiver of the surgeon's hand, and the eye fluids will pour out on the table—the eye will be damaged beyond repair.

The surgeon's hand twists slightly. He lifts the knife. Clinging to it is a round piece of the diseased cornea, 4/100 of an inch in thickness. Some fluid trickles from the cut eye but it is only that which occupies the space between the protective, outer cornea and the underlying eye lens and iris. Nature will replace it in its healing process.

From a sterile container, the surgeon takes a piece of living cornea. With a tiny needle and thread he sews it in place over the opening in the eye. The operation is completed.

But sight has not yet been restored. For five days the eye and eyelids must be kept motionless while the new cornea "takes root" and grows. Success depends upon many things—the age, general health, blood group of the patient. Perhaps this new tissue will become cloudy and form a cataract, also. If the "take" is successful, the other eye will be operated upon.

This newest miracle of surgery is a *corneal transplant*, which was perfected during the past war. Eye banks in New York and Chicago have been supplied with eyes by people who will them to the bank after death—and in some cases by living donors who sacrifice the sight of one eye that a less fortunate mortal may see. There is new hope for the cataract-blind! •

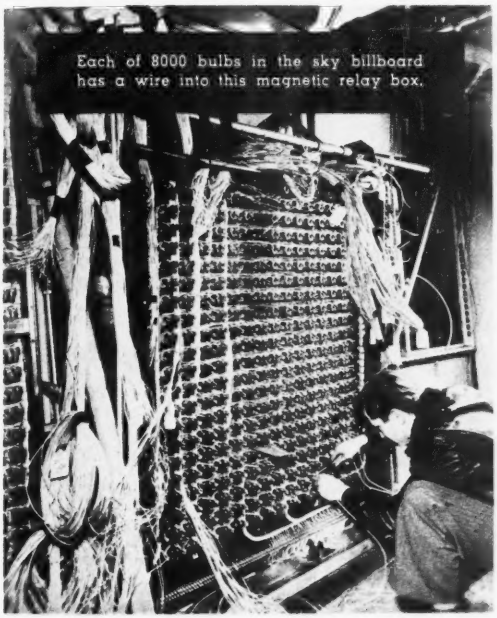


ANATOMY OF THE EYE: 1—cornea, 2—iris, 3—pupil, 4—lens, 5—optic nerve, 6—blind spot, 7—retina, 8—muscle, 9—eyelid, 10—eyelash, 11—tear duct.

Blimp-borne "bread," soaring over Manhattan, outshines the brightest lights on Broadway.

SIGNBOARD in the SKY

The "Wonder" ship noses up from its Lakehurst, N. J., base to fly its ad.



Each of 8000 bulbs in the sky billboard has a wire into this magnetic relay box.

Portable mooring mast moves into town a day ahead of the barnstorming blimp.

THE farmer's daughter heard a strange humming in the warm summer night. She stepped cautiously off the front porch and looked up into the sky. She stepped back quickly as she saw a huge, sparkling loaf of bread floating across the dark heavens.

The astounded farm girl is only one of millions who are being amazed by the spectacle of the giant flying billboard now cruising about the country and lighting the landscape with a bit of Broadway.

The flying billboard is the fanciest "spectacular" yet dreamed up by Douglas Leigh, Broadway's neon Napoleon. A Navy blimp, destined to be cut for raincoats, was salvaged and remade into an aerial signboard that flashes 18-foot letters in a running sign 100 feet long. Electrical overlays on the port side display the largest loaf of bread in the world —31 feet high and 66 feet long. •

Tomorrow's Model Farm—

After 150 years of the hard-working in the old home and

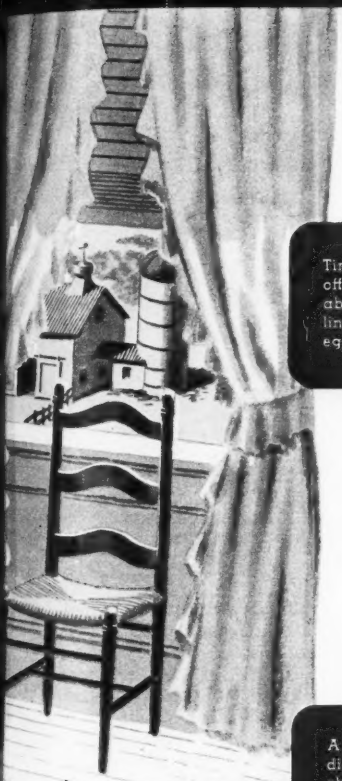
By J. Alvin Kugelmass

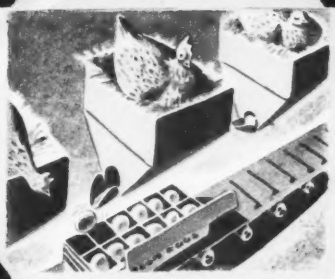
EVER see a farmer breakfasting in bed instead of rattling around the barn on that old five-o'clock jump?

For years daybreak has been the zero hour that blasts the farmer out of bed and dumps him into a grim grind of milking the cow, watering the horse, feeding that pig, pitching the manure and planting that field. Breakfast in bed? That'll be the day, mister.

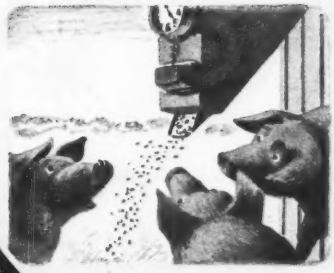
But that day is *today*. At the model farm set up by Wisconsin College of Agriculture, the farmer can lie back in bed on the bitter mornings and twirl the dials on a master switchboard to feed all his animals and get the heat [*Continued on page* 72]

—TODAY





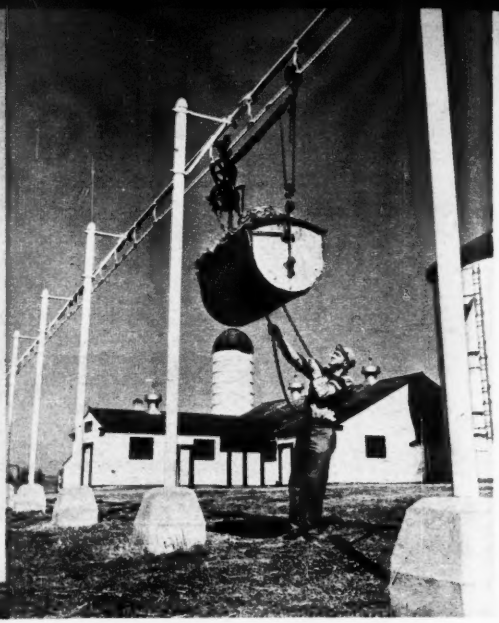
Time may not be far off when farmer can lie abed and control streamlined operations—like this egg belt—via television.



A twist of the video dial will enable him to check quickly to make sure automatic feed dispenser for hogs is running right.

neglect, science takes pity on farmer and puts pushbuttons "Turkish baths" in the pigpen.

And here's what the up-to-date television farmer might see if he tuned in to watch his milk factory roll out the cans.



Sturdy tower of steel silo (left) easily withstands the high pressures of grass or corn silage. Carrier trolley (right) hauls manure or produce about the farm and saves the farmer hard labor.

just right in farm buildings. A microphone hookup to the barn, the pigsty and the henhouse tells him whether his farm population is hale and happy.

The farmer can't till the soil by television yet but science really has gone to work on our old-fashioned farms and planted a fine new crop of labor-saving gadgets. Soon the pushbuttons will be popping up all over the old place.

Overhead trolleys at the Wisconsin model farm do a lot to take the ache out of the farmer's back. Steel cable cars haul sacks of produce or scoop up big piles of manure and trundle the load easily from one part of the farm to another. Naturally, loading or manuring a crop is simple with the trolley and cuts a dreary, daylong task down to a matter of minutes.

Both Dr. E. E. Heiser of the Dairy Husbandry Division at the Wisconsin College, and S. A. Wetzel, professor of agricultural engineering there, agree that not only are our farmhouses too ancient but they are poorly planned and far too costly and inefficient. Carefully planned housing, for instance, can step up a cow's milk-producing span of four years to six, or even seven, years, Dr. Heiser found.

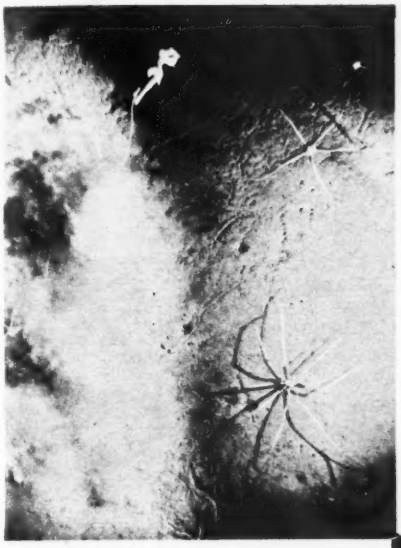
Animal experts at Iowa State College as well as those at Wisconsin have been experimenting with barnyard housing and have streamlined farm units in gleaming steel. New bright-steel cowbarns, pigpens and brooder houses for poultry not only will save millions of farm animals but will speed the development of superior cattle, hogs and chickens. The steel units mean cleaner, safer and more comfortable quarters for the animals in all weather, and greater and better controlled production for the farmer.

Thanks to the new units, the farmer now can run [*Continued on page* 151]

Portable pigpens helps the farmer to isolate or prime hog farm sick epidemic.

new IN SCIENCE

Electric Cannon discharges 600,000 volts in experiments at Westinghouse to determine breakdown limits of gases. Latter may replace oil in transformers.



Ocean Floor photographed at depth of 5,580 feet by Oceanographic Institute of Woods Hole, Mass., shows sea spider and strange tracks of unknown, undersea life.

Eavesdropper device is hearing-aid type instrument for people with normal hearing. It can be used at banquets, concerts, etc., where sounds are muffled. Called Hearette, it is made by Acousticon.

Flying Automobile—'48 Model

On land it's a sleek-looking plastic car, below. But in the air it becomes the fuselage of the "planemobile," above.

THE motorcycle cop drew up alongside the speeding car and motioned for the driver to pull over to the curb at the corner.

"What do you think you're doing?" he sneered. "Flyin'?"

"Honest, officer," came the startled reply, "I forgot that I wasn't!"

Maybe that seems a bit far-fetched to you. But don't forget that the driving problems in an age of flying automobiles are going to be a lot more complicated than those in our own day of "old-fashioned" cars.

Citizens of San Diego aren't shocked any more by the sight of an auto with wings sprouting from its sleek body flying along in the sky. The unusual machine is the "Convair Flying Automobile," designed by aeronautical engineer Theodore P. Hall and built by Consolidated Vultee Aircraft Corporation. This combination auto-plane is still in the experimental stage. Unlike an earlier unsuccessful model which crashed, this one has passed its flight tests with flying colors. The way is now clear for commercial improvements which will make it available to the general public.

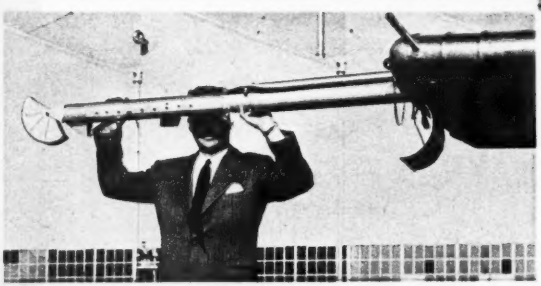
Designer Hall has been working with this type of vehicle since 1938. His early models used only one engine for both the plane and the car. Hall wasn't satisfied with tests. He felt that the efficiency of the car on the ground was hampered by the gas-consuming airplane engine. So he proceeded to experiment with separate engines and came up with the present '48 model.

This machine has two separate sets of controls as well as engines. The trim, plastic-bodied auto has its own 25½ hp Crosley motor in the rear and the flying section is powered by a 190 hp Lycoming

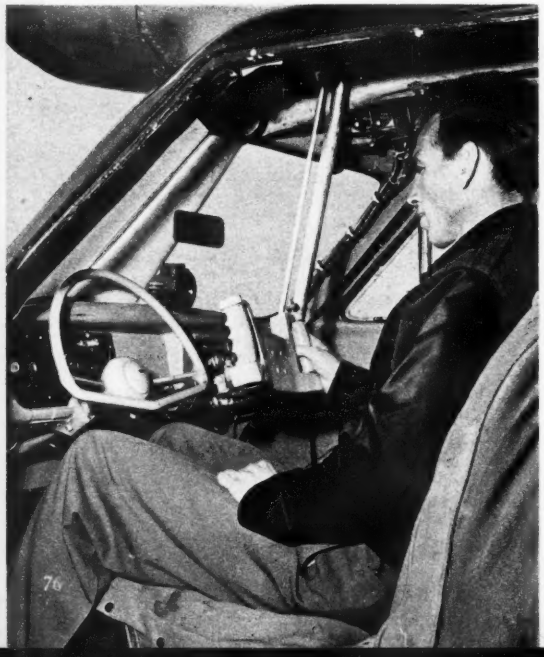
Photos by Ross-Pix

Here's a way to beat traffic jams on the highway. Just fasten the flight section to the car at the three attachment points and take off

Aluminum jacks hold up plane as car drives away. Below, jacks are stored inside wing when not in use.



You can't drive the car with airplane controls. At left is the steering wheel and at right the joy stick.



engine. The four-seater car actually serves as a landing gear for the plane. It's sturdily constructed and a steel tube roof structure makes it strong enough to stand up under rough landings. Hall figures that the roof can support more than six times the weight of the flight section. The car is equipped with shock absorbers, hydraulic brakes and fluid drive.

On flying performance the plane compares favorably with four-place airplanes now on the market. Its all-metal wing has a 34½-foot span. The airplane parts won't fly off the car when you're zooming along overhead because they're secured to the roof of the auto at three different attachment points.

Inside the wings are jacks which support the airplane section when the car is driven out from underneath. These same jacks can be used to change flat tires, too.

Both Hall and the company stress the fact that more work, study and testing will have to be done before definite plans can be made. So don't count on head-in-the-clouds driving yet.

But they firmly believe that within a few years you're going to ask your girl out for a spin and offer her a choice of highway or skyway. If the traffic on the highway gets heavy, you'll be able to put on your wings and take off. •

Howard Da Silva–
Hollywood's Iron Man

hobby
HALL OF FAME

When not acting, he's an artist with the forge and anvil.

Da Silva appears at left as many of us have seen him—a screen villain. At right he's working at his hobby. Below he stands in his shop amidst some of his masterpieces.

HOWARD DA SILVA has more than one iron in the fire and we're not speaking figuratively. Not only is he one of Hollywood's top movie stars but he is also a master of wrought iron which he fashions into objects of art for his shop.

Da Silva has never forgotten his experience as a steel worker in Pittsburgh and has always retained his interest in metal working. In his early twenties he paid his way through Carnegie Tech Drama School by working in the steel mills. Now that he has become a success, he looks to his old profession as a means of relaxation. He claims his hobby has helped him act, too. The hard, villainous expression which has been so successful in the movies was developed while swinging the hammer at the anvil.

After creating the role of Jud in Oklahoma he returned to Hollywood where he opened his Indoor And Outdoor Shop of iron creations. His current picture is The Twisted Road. •

FIRST ALL-PORTABLE TELEVISION SET

Youthful inventors planning to market compact video unit for less than $100.

By Lester David

ACTUAL SIZE of the three-inch screen is shown in this "porthole" portrait of the young inventors. That's Sal at the far left, then Nick and Paul.

A bit of wire, some spare radio parts and second-hand instruments picked up in the neighborhood, and an old textbook—that's all three Brooklyn boys needed to outsmart the brightest engineering brains in the country and build the world's first completely portable television set!

A year ago the three youths—Nick Ferrare, Paul De Sario and Sal Minardi, all sons of Italian immigrants—knew no more about television than they did about why the ancient Peruvians drilled holes in their heads.

Then Nick stumbled on a beaten-up book on television and showed it to his two buddies. All three had served in the Navy during the war and were still finding it tough getting a decent start in civilian life. They forgot about their poor-paying jobs as messengers and stock boys, though, as they riffled through that television text.

Through a friendly wholesaler they got a couple of sets and started trying to peddle

Here's the portable video set up in Nick's garden for an afternoon's fun. Even in the sun the image is sharp. On opposite page Sal swings along easily with the receiver and the power pack.

them to the neighbors. For two weeks the trio heard the same refrain: "Now if you got a little cheap one I can pick up and take outside. . . ."

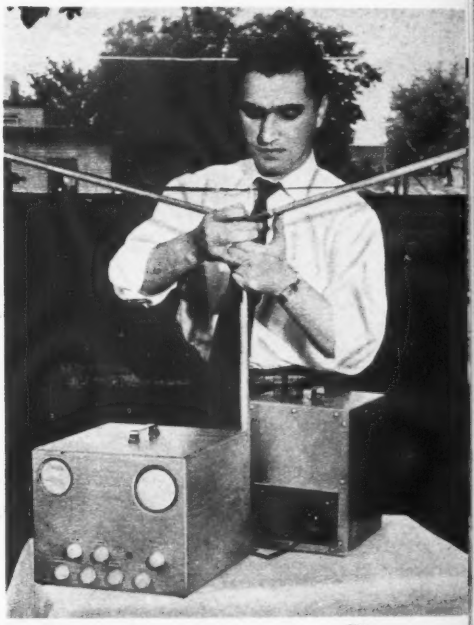
Why couldn't someone build a small portable television set at a price anybody could pay? The television dealer said the best engineers in industry had already tried and failed. The boys still thought it a hot idea.

On a workbench in Nick's cellar, they started adapting the textbook's diagrams to turn out a neat little television pack all their own. For 18 exciting days the three sweated over odds and ends of electronic equipment. Out of those bits they designed a compact, 16-pound television receiver with a foldaway aerial. The 19-pound separate power pack, though, was their prize gimmick, a secret device for converting the small battery's DC to AC and stepping up the voltage from six volts to the 110 needed to run the set.

On the 18th day the boys carried their pioneer portable set into Nick's garden for its first successful test.

Still breathless at the sudden upsweep of fortune, the three youths now are busy nailing down patent rights and working out a big deal to produce their portable "walkie-lookie" to sell for less than $100. Next thing they'll have to do will be to build a portable bank to carry their new bankroll. •

It's simple to use the set outdoors. Paul shows us he unfolds the collapsible aerial.



Inventor's Paradise

MI's News Editor gives you the inside story on how the Institute of Inventive Research can help you with your invention.

By Arthur Unger

"WHY doesn't somebody invent a frying pan that'll flip eggs over automatically?"

If you're one of the guys who dreams up such bright ideas and then claims he'd make a fortune if only he had the scientific, financial or industrial know-how, here's your grand opportunity to hit the jackpot. The newly formed Institute of Inventive Research will not only listen to your bright idea, but it will investigate it, draw up plans, make blueprints, build models, conduct tests and then even market it for you! And at no initial cost to you, either.

Take the case of Hugh Metcalf and Robinson Brown, a couple of San Antonio mechanical engineers. They got sore at their lawn sprinkler which was watering their neighbor's lawn, the garage and part of the street as well as their own garden. So they figured out a plan for a sprinkler which could be fixed to spray any spots in a given area. Lack of time and funds forced them to give up the idea. Then, somebody told them about the Institute of Inventive Research and they turned their idea over to that organization. After months of work, the Institute is now making its final tests on the gadget. By next summer it'll be on the market making money for its inventors

TREE-PULLER: This hydraulic machine developed at the Institute grabs the trunk and yanks the tree out of the soil.

Your invention is made into a working model and tested by Institute scientists in this machine shop.

and making life easier for home-owners.

This inventor's paradise is a non-profit institution founded and financed by Texas oilman, Thomas Baker Slick. He has put more than a million dollars into the venture. Under his plan, no worthwhile idea will be prevented from reaching the public merely because the inventor lacks money, experience or technical information. If you have a worthy patentable idea, the Institute is willing to help you with it.

Last year William N. Smith of Dallas came to the Institute with an idea for a light-weight cotton-picking machine which could be attached to a tractor. The Institute realized that many such machines had been developed at fabulous cost only to fail in actual performance. So, it looked over Smith's plans with great caution.

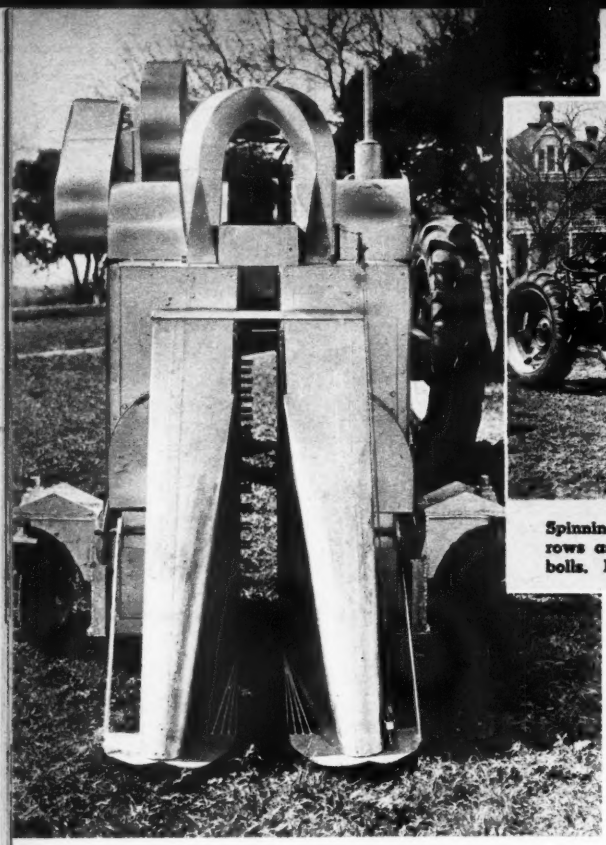
A year was spent building the picker from Smith's patents. Institute engineers redesigned the machine and smoothed out all the "bugs." Then it was rigidly tested during the cotton-picking season in Texas.

Soon, the Institute expects to release the successful cotton-picking machine to a co-operative group in Texas which will manufacture it to sell for less than $4,000.

Mr. Smith, who is an elderly man, lacked the finances to see his brainchild through to this advanced stage. The Institute of Inventive Research, however, saw to it that his dream came true.

But, don't think that the Institute is willing to waste time and money on mere dreams and crackpot schemes. Located on a 3,500-acre ranch near San Antonio, the organization makes two basic demands upon inventors—the idea must serve some

Cattle used in experiments in transplanting fertilized eggs are kept healthy by spraying them with DDT compound.



Spinning needles move in and out of rows as cotton-picker strips needles off bolls. Institute machine will cost $4,000.

When your dream gets to this draughting room in Slick's inventor's paradise, it's well on the way to becoming a reality.

worthwhile purpose and it must be patentable.

The Institute works hand-in-hand with research institutions also set up by Slick. Sections of these organizations are devoted to the study of cancer, physics, radio mechanics, chemistry and many other fields. One group is working on a plan to use scrub cows to mother prize cattle. Eggs are taken from blue ribbon animals after normal fertilization and implanted in another cow which carries it through the gestation period. A prize animal is thus able to produce as many as 17 quality calves in one year. With experiments such as these, Slick hopes to benefit the entire country as well as farm communities.

Millionaire Slick has a personal interest in promoting inventions because he is a successful part-time inventor himself. He's developed, among other things, a feather-cutting machine, flexible glass building material and a jet-powered electric generator. He feels that nothing should stand in the way of a good idea.

Last year, he saw to it that an employe of his got off on

Easy does it! A 650-pound tire is quickly removed with hydraulic unit. Before machine was invented, it was a 7-hour job.

the right foot. Thomas Carmichael of Burbank, Calif., is a mechanic for Slick Airways. He found it was a rough job to dismount huge airplane tires. Sometimes he had to run a heavy truck over the tire in order to break the bed. Then, he figured out a plan for a portable machine to remove the tires with hydraulic pressure. He presented his rough designs and a crude model to Slick's Institute of Inventive Research for further development.

The Institute carried on from there. Now, a number of manufacturers of airplane accessories are bidding for the rights to this machine which saves more than seven man-hours per tire. Carmichael figures he could never have advanced to this stage without the help of the Institute.

Requirements for submitting ideas to the Institute of Inventive Research are simple.

1. Describe the idea fully on one side of a sheet of paper, using ink or a typewriter.

2. Include drawings, photos of models, patent and search information, and any informative material you have which might help the Institute.

3. Letters must be dated and mailed flat to the Institute of Inventive Research, 1804 Milam Building, San Antonio 5, Texas.

Shortly after your original letter is sent to the Institute, you'll receive a note giving you an Institute file number and telling you when to expect a preliminary report. This report will simply say whether the Institute does or does not believe the suggestion worthy of further study. If the verdict is yes, the approximate amount of time necessary for the investigation is given.

Then the real work starts. The article may be redesigned, replanned and new models built. Consumer tests and market research is started and performance is carefully checked. Then, supplied with reports from all divisions of the Institute, an evaluation board makes the final decision. If it decides favorably, a permanent agreement is sent for you to sign.

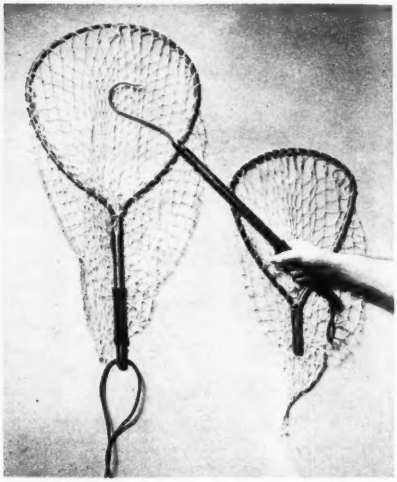
Naturally the profit split-up is of vital interest to you. Your cut may vary from 25 per cent to 90 per cent, depending upon the amount of work you've put into it, the cost of the Institute's experimentation and the monetary risk involved.

After you approve the proposal, an application for a patent is made in your name.

The Institute pays all the costs and you assign it your power of attorney. The model is then perfected—manufacturing details are [*Continued on page* 152]

Automatic Golf Tee has made its appearance in Louisville, Ky. Just step up, drive your ball, and another quickly appears in position. A hopper in left of photo feeds balls to a lifting gadget below mat, placing them on the tee. Ideal for driving ranges.

Net And Gaff combination has interchangeable, extension handles. A slight pressure on a ball-lock lengthens, shortens or removes them. Made of rustproof steel and aluminum by Lawrenz Products of Chicago, Ill.



Retriev-a Buoy will help you recover equipment dropped overboard. Different size units fasten to tackle box, rod or motor; when submerged, water releases a spring and buoy with cord attached floats to surface so object can be raised. Made by Panef Mfg. Co. of Milwaukee, Wisc.

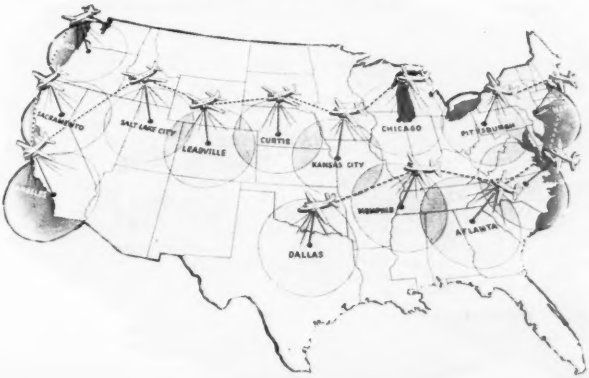
Mast-like transmitting antenna is below nose of B-29 and receiver is on tail. Right, Art Unger, MI News Editor, inspects hydraulic system which retracts antenna so that the Stratovision plane can land.

Stratovision Really Works!

IN the December, 1945, issue of MECHANIX ILLUSTRATED we presented the complete story of Stratovision, a Westinghouse-Glenn Martin plan for relaying television by airplane. At that time it was simply an engineer's dream of making coast-to-coast television broadcasts cheaper and easier than by relay stations or coaxial cables. Now it is a reality.

MI's News Editor recently traveled to Zanesville, Ohio, to witness a demonstration of the new Stratovision. A converted B-29 circled 25,000 feet over Pittsburgh and relayed from Baltimore a program which originated in Philadelphia. Reception was reported from as far south as Roanoke, Va. and as far north as Cortland, N. Y.

While the picture was often not as clear as in the better receiving areas, Westinghouse engineers say all bugs will be ironed out. Soon they hope to start a regular Pittsburgh flight as the first step in a 14-station network. Then rural residents will really be "seein' things." •



Each of the 14 stations in the network will serve a 500-mile diameter video zone.

Here's a hydrofoil at speed, with hull wholly out of water.

Are Hot-Rod Racing Boats

Will freakish craft set tomorrow's world speed records?

THE three most publicized motorboat races in America are the National Sweepstakes, held last month, and the Gold Cup and President's Cup Races, which are being run this month. If past performance is any guide, no amateur-designed or amateur-built "hot rod" will finish anywhere near the top in any of these tests. Why? Well, first there's the matter of cost.

"But," I can hear you say, "I know where I can pick up a surplus 1,360-hp. Allison engine, just like the one Guy Lombardo is using, for only $100. And for another couple of hundred I can get a gear box. At that rate, surely I can build a hydroplane for less than a thousand bucks that'll have a chance of trimming the ears off the rest of the Gold Cup fleet."

Stand by to be disillusioned. There's an amateur in New York City who bought just such an engine and gear box for even less than the figures mentioned—and his boat, which isn't, at this writing, anywhere near completed, has already cost him $7,000!

Then there's the little matter of designing a hull that will outperform anything afloat today. Trying to do that has long been a favorite occupation of the wild-eyed, hare-brained, cartoonist's-dream type of inventor. Despite the fact that none of his breed has ever made an important contribution to the field of high-speed boat design, he still persists. It was one of his ilk who proposed perhaps the most whimsical of all designers' nightmares. This character had admired the effortless

"Whistler," with an air propeller, draws but four inches of water.

the Answer?

By Gerald Taylor White

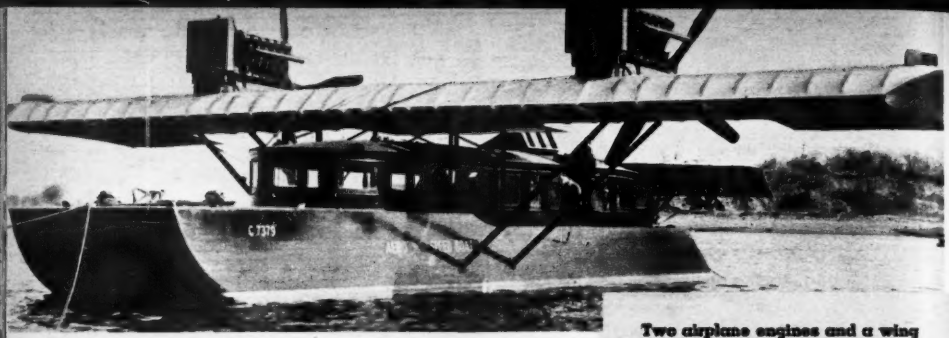
way incoming waves rolled up on a beach. And he had spent many an hour in Central Park Zoo enviously watching the sea lions streaking back and forth across their pool.

So, when he set out to revolutionize speedboat design, he designed the bottom of his boat in the shape of a wave and covered it with sea-lion skin. His theory was that the boat, once set in motion, would slide down her own bow wave and that the skin—he was very careful to specify that the hair must point aft—would reduce resistance to the vanishing point. Eureka. . . . Perpetual Motion! In fact, he claimed that one of his most serious problems was making the boat stop.

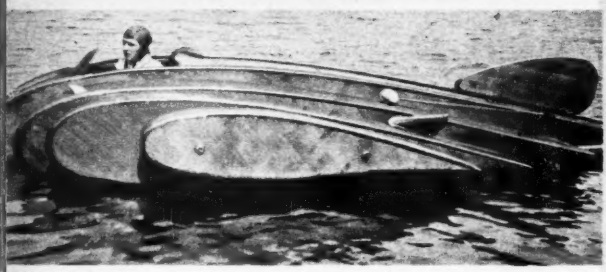
Luckily, before he had bilked too many innocents, the police sent him to jail—for carrying a revolver—where he had ample time to study the laws of naval architecture.

But despite such abortive attempts as this the continuous struggle to increase speed afloat—when undertaken by competent designers, builders and drivers—has brought results. It is only a matter of a relatively few years since learned boat designers seriously debated whether it would be possible to drive a boat faster than 30 mph. We know now that speeds in excess of 140 mph. are possible. This advance has been due to one basic improvement—the lightweight, fast-turning marine engine. During the 19th Century a hull that would skim over the surface of the water instead of going through it was invented and reinvented a dozen times. But these early boats were unsuccessful because engines were so heavy that no boat could float the power required to drive her at a speed high enough to plane.

Can he repeat? Danny Foster, here being congratulated by Guy Lombardo, last year got a triple slam with "Miss Pepsi V," left, a triple-point racer.



Two airplane engines and a wing were here ingenuously combined with a heavy mudscow-like hull.



Another would-be world-beater on which there isn't any performance data was this aero-hydro racer.

The freakish "Miami Queen" was designed in an unsuccessful bid to raise Gar Wood's record.

Now that we have the proper engines, though, hydroplanes flourish. There are three common types; stepless, single-step, and three-point. All modern runabouts are stepless hydroplanes. At extreme speed this form tends to "porpoise" so it isn't as efficient as the other types. But it is a far better boat at low and medium speeds. Many designers claim that the single-step hydroplane is the most efficient type. Gar Wood's famous *Miss Americas* are single-steppers. Because it is such a radical departure from a normal boat's shape, this form has excessive resistance at low and moderate speeds. It is inefficient and uncomfortable except when running wide open.

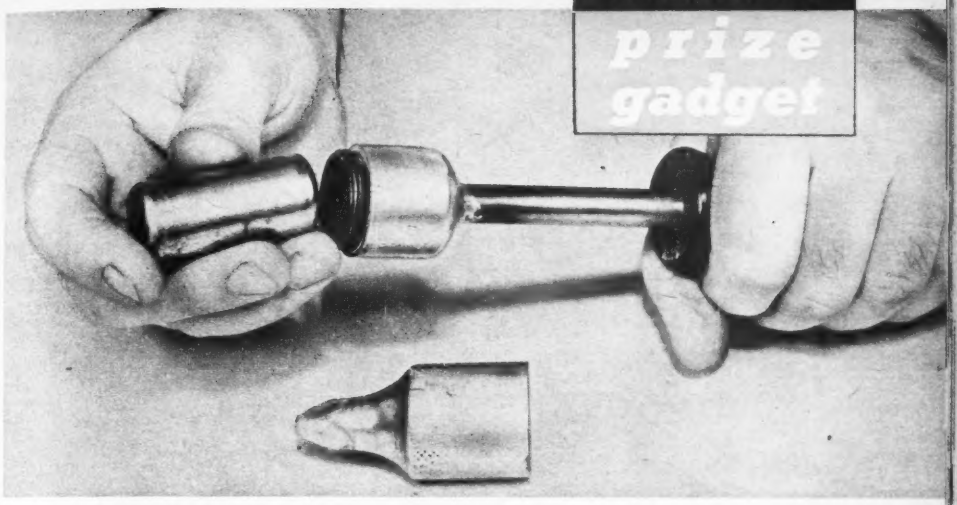
The basic idea of the three-point hydroplane is to have three separate planes, each working in water that is undisturbed by any plane ahead of it. This gives great efficiency, since planes running in disturbed water have far less lift than those passing through undisturbed water. Most of the racers being built today are of this type.

Another type of hydroplane, which isn't so widely used, is the hydrofoil, a boat that is supported at speed by small submerged planes which are held on struts below the hull. As the craft lies at rest, all of the planes and some of the main hull are immersed. As she gathers way the hull rises and the upper planes follow until the boat is skipping along the surface with only a couple of square feet of plane in the water. The chief drawback to this type so far has been its lack of stability.

The evolution of today's racer has been a logical process. There's little or no call for developing freaks. Are "hot rods" the answer to racing boat designers' never-ending quest for speed and still more speed? No. •

THIS MONTH'S

prize gadget



Self-Heating Soldering Iron

FRANK PETRAGLIA is an "electronic" guy from 'way back. In the depression years he coasted around the world as radio operator on a steamer. Then he spent some time teaching radio operation and repair in the New York City industrial schools. In 1943 he started writing radar manuals for Uncle Sam and has been dipping his hand into radio-engineering writing ever since.

"On many occasions in the past," Frank said, "I've found myself stuck miles from nowhere with a broken radio connection and no soldering iron. I swore that one day I'd invent a portable one with its own built-in heating unit. Here it is!"

Frank's iron unscrews at the end to take a heat cartridge. A bang on the handle punctures the cartridge and air enters, starting a chemical reaction which heats to soldering temperature in 5 seconds and stays hot 8 minutes. •

Inventor Frank Petraglia uses his iron to repair a radio break. Photo at top shows heat cartridge.

YOU CAN WIN $50

Dreamed up a neat gadget? Send pictures and a description of your favorite invention to Gadget Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 18, N. Y. Each month the best entry, in the opinion of MI's editors, will be awarded a prize of $50.

The catfish is a naive creature; you can hypnotize him easily —but watch out when he discovers he's been double-crossed!

Catching 'Cats' by Hypnotism

By Brady Gibbs

TOM MITCHELL of Butterfield, Missouri, took a deep breath and dived under the surface of the White river. In his hand he held a short barbed spear, and behind him a stout line trailed out to where Ira Mathews, dressed in shorts, sat on a bank.

Tom swam deeper and then disappeared under a submerged rock ledge. There in the semi-darkness he frog-kicked his way along the wall and sides of the underwater cave, feeling ahead with his free hand.

When he came to the black entrance of a small sub-cavern, he swam in without hesitation and continued to grope along the ceiling. He kicked to a halt when his hand passed over the stomach of the biggest catfish he had ever felt. He stroked the big, cold stomach rhythmically, hpynotizing the monster into a false sense of security, then he prepared to deliver his blow.

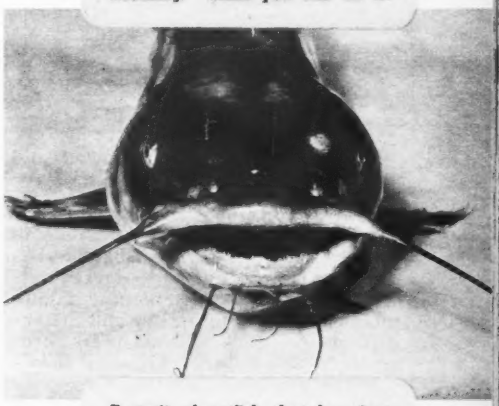
He jabbed the spear through the black, rubbery side, setting it between ribs that were almost as big as broomsticks, and started to swim back to the surface. But he wasn't quick enough, and that big cat proceeded to give him the worst mauling he ever took.

The fish turned and threshed all about the small cavern trying to tear the hook out of its sides. Its movements slammed Tom again and again on the sharp rocks. After what seemed hours, Tom struggled out of the cavern and kicked his way to the surface, bleeding from many cuts and scratches.

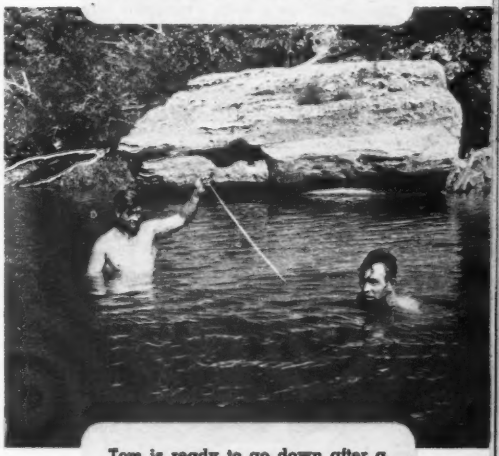
They couldn't get the fish out until the next day and then only after Tom had dived down to complete his kill and clean him under water. Their cat weighed 100 pounds, was nearly six feet long, and dressed out 50 pounds of firm, juicy steaks.

Tom and Ira were "noodling," an almost forgotten method of taking catfish which is employed here and there about the Ozarks and some of the Southern states. Sometimes called "grabbing," [*Continued on page* 153]

Tom Mitchell (left) and Ira Mathews (right) are masters of the art of "noodling." Think you can do it?



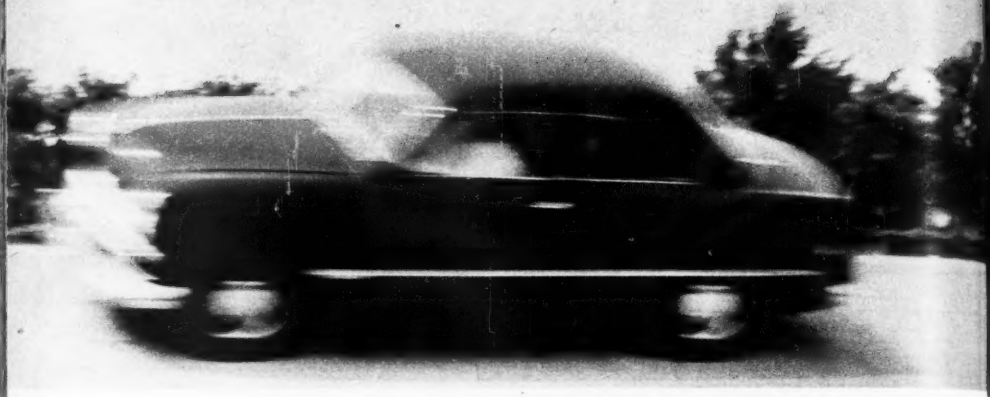
Portrait of catfish that has just been "noodled." It is amazed that Tom and Ira could be so deceitful.



Tom is ready to go down after a choice specimen. The rope is to help him fight his "cat" to shore.

Courtesy of Ford TIMES

This '49er is making better than 92 mph.



MI Tests the New Ford

By Tom McCahill

"FORD'S Out Front" the ads used to read and a year ago this statement was highly debatable. Today Ford is really out front—and by miles!

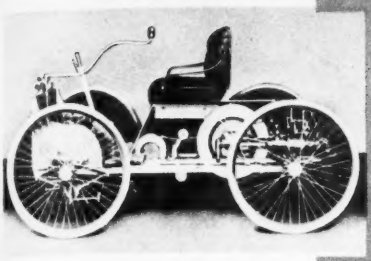
The new 1949 edition is quite an automobile. It's good to look at and better to drive, and I think that all in all Ford is again the King of the low-priced field.

In the July issue we brought you a very much abbreviated report on this car because, on my first trip to Dearborn, there just weren't any production line jobs available for a test. The job I was allowed to drive was a handmade affair. By now most of you have seen pictures of the Ford if not the car itself, so there's nothing to be gained by discussing its appearance. If you like the new, low, double-ended look, you'll like the Ford. But there are other changes. Here they are:

The engine differs slightly from last year's. It now boasts an upright distributor and the manifolding has been slightly changed. The car itself is approximately 250 pounds [*Continued on page* 154]

The motor stopped and the engineers couldn't find the trouble. Tom will be back in a jiffy.

Lots of trunk room is shown by Tom and the 6-cyl. engineer. Tom is 6-ft. one, with his hat on.

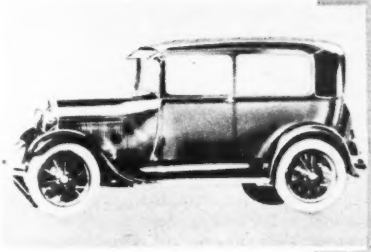


First Ford 1896

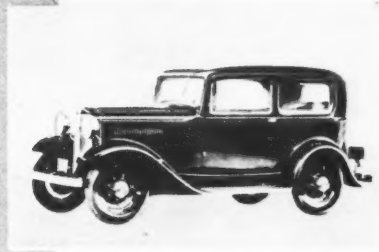
Ford 1901

Model "T" 1908

Model "T" 1927



Model "A" 1929

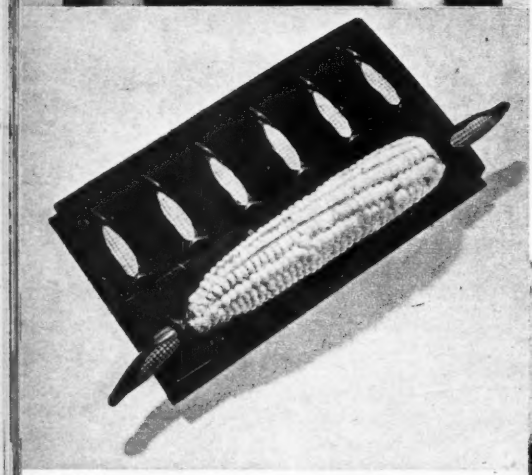


Model "V-8" 1932

1949 Tudor

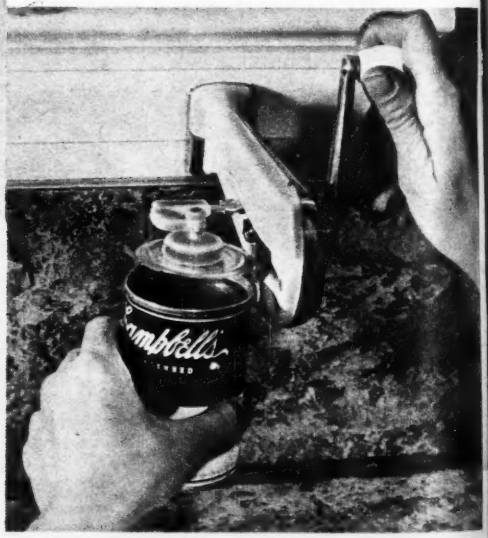
new
IN THE HOME

Just For The Record. The Vinylite plastic discs, above, lengthen the playing time of your favorite platter by fitting over worn pivot holes which were loosened by constant playing. Penlee Manufacturing Company of Dubuque, Iowa, makes them.



Maize Eater? Plastic corn-holders, above, help you do a real job on the cob. The pronged ends impale the corn and save you blistered fingers. They're available from Harold L. Ross Associates of New York City.

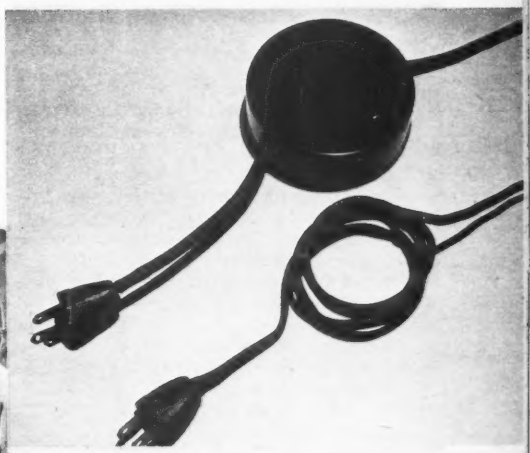
No Fingers In Soup when the magnetic can-top holder, below, finds its way into your kitchen. It's an attachment for your wall can opener that keeps lid from falling in the soup. This holder can be obtained from General Electric, Pittsfield, Mass.



Metal Shingles, below, save you money in handling and in construction. The Kaiser aluminum siding and roofing is being manufactured by the Permanente Metals Corp. of Oakland, Cal.

Radio Silencer, above, turns off that blasting radio as soon as you pick up the telephone receiver. Then it turns it on again when conversation ends. Can't do anything about the radio next door, though. Kenworth Mfg. Co. of Milwaukee.

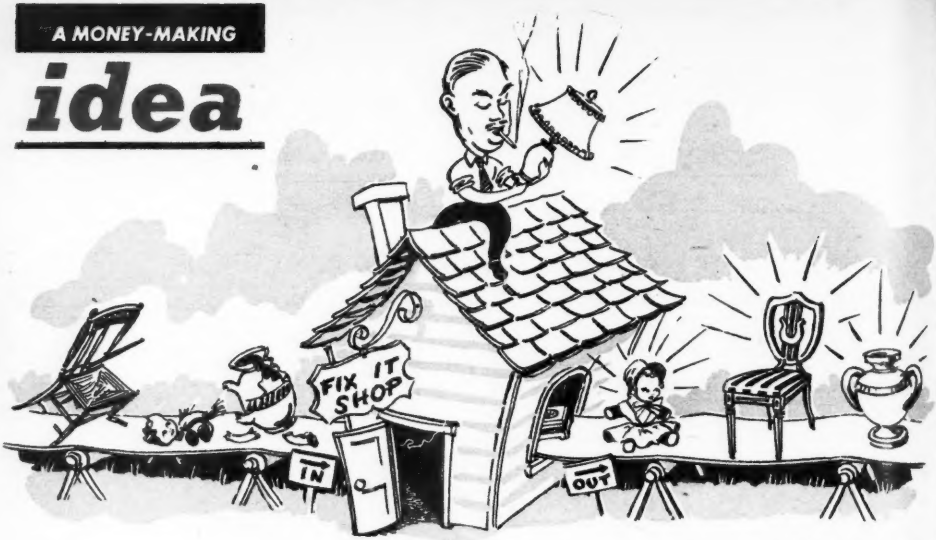
Tele-Magnifier, below, enlarges image received on a seven-inch television tube to the same size and brightness as pictures received on a 15-inch tube. It's a hollow plastic lens filled with a clear oil. Enlarger is made by RCA-Victor, Camden, N. J.



Wiring Reel, above, holds and dispenses excess extension cord. It can be attached to the wire without disconnecting the electrical appliance. This Bakelite plastic device can be bought from Eypper and Company, of N. Y. C.

A MONEY-MAKING

idea



Photos by Robert Brightman

Mr. Fixit Went To Town

By Charles Samuels

TWO hours after midnight a frantic housewife in Greenwich, Connecticut, telephoned Arthur P. Chamberlain. "My baby is locked up in her room," she said in a voice that was almost hysterical. "I'm all alone in the house and I can't get the door open. Could you come here right away?"

"What's wrong with the door?" he asked as he jotted down the address.

"I don't know. When I try to turn the knob it just goes round and round. And the baby's crying so—she'll be sick!"

"Stop worrying," he told her. "I'll be there in ten minutes."

In seven minutes' flat he was at her house. Within a moment or two more he had the door open. And the baby, frightened but unharmed, was "rescued."

"How much do I owe you, Mr. Chamberlain?" the relieved mother asked after she had pacified the infant.

"Two dollars."

"But that isn't enough," she protested. "I want to pay you more. You must have got up out of bed to come here."

"I wasn't in bed when you called," he assured her. "I was playing bridge. I can't charge more than two dollars for a few minutes' work."

Arthur P. Chamberlain

This little incident goes a long way toward explaining why Arthur Chamberlain, a former Wall Street stock broker, has the reputation around Greenwich of being a most unusual Fixit Man.

"Giving the customer a break usually pays off in this odd kind of business," he says. "Of course, what I did that night for that scared woman anyone could have done. There wasn't anything wrong with the lock—it just needed adjusting. But she

Frank Turek, left, and Peter Mynarski are two of the Fixit Man's assistants in the shop.

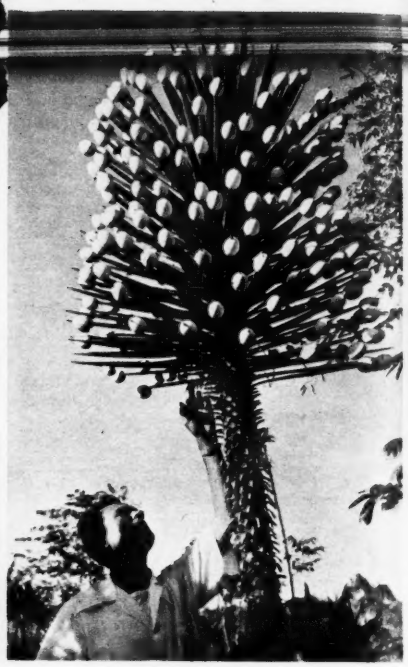
told all her neighbors and friends about my refusal to over-charge her. Her goodwill has since brought me thousands of dollars' worth of business from them.

"Young fellows who want to start fixit shops in their home towns shouldn't kid themselves. You have to love to repair things so much that you're willing to go out on emergency jobs day or night. I put in from 12 to 14 hours a day seven days a week. I keep myself especially available on weekends when people can't get a plumber or any other sort of repairman."

Chamberlain, now 56, is a stocky, moustached, distinguished-looking man who was successful in Wall Street until the 1932 depression came along. But for some time prior to that disastrous year he had been spending all his spare time at his hobby of repairing broken or damaged household articles. He had a repair shop completely equipped with power saws, lathes and so on. When there was nothing to fix around his own house, he tinkered with his friends' broken clocks and lamps, charging only for the material he used.

After leaving Wall Street, Chamberlain ran a branch [*Continued on page* 156]

Repairing a child's toy piano is part of day's work for craftsman John Castronovo.



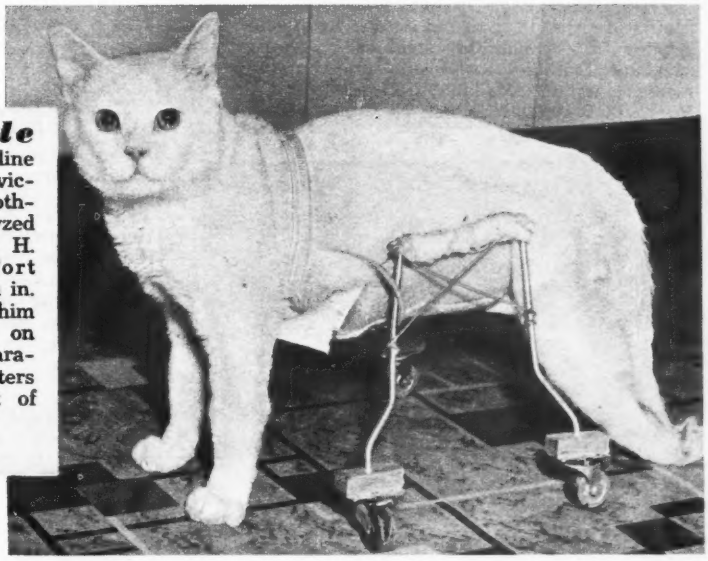
Long Range "Gatso" can go from St. Louis to New York without refueling. The Dutch car is made from Ford parts and has a large reserve fuel tank. It's the first post-war auto to come out of Holland and will sell for $4,200.

Eggs On Trees were not laid by high-flying hens. Farmers in Puerto Rico decorate their trees with eggshells which reflect the brilliant tropical sunshine and thus scare the daylights out of destructive lizards.

"Oh Yeah" is both the name and reaction to this symmetrical control-line plane. But not only does the one-winged, one-tailed racing model fly, it makes better than 150 mph aloft. The "sidewinder" was designed and built by Glenn F. Crist, Modesta, Cal.

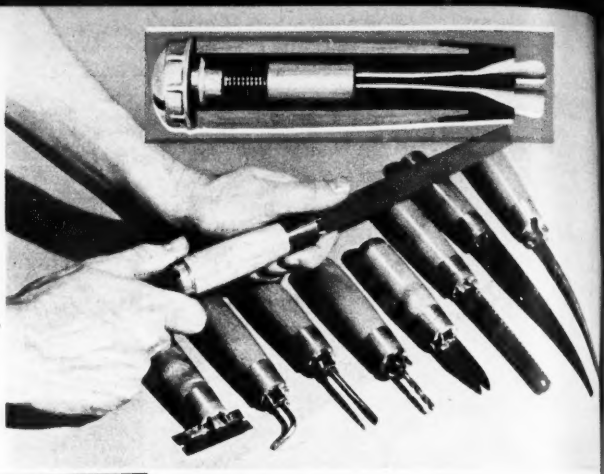
Baby Jets are safe enough for youngsters. Even a child can slip the cartridge into the model and light the end of an igniter wick. The cartridge then burns quietly without a flame and propels the plane 30 mph.

Atom-Age Bike is powered by three Dyna-Jet model airplane engines. They're mounted behind the seat and drive the bicycle at speeds up to 25 mph. Champ bike racer Irene Kiss, above, says they're big help to leg muscles, too.

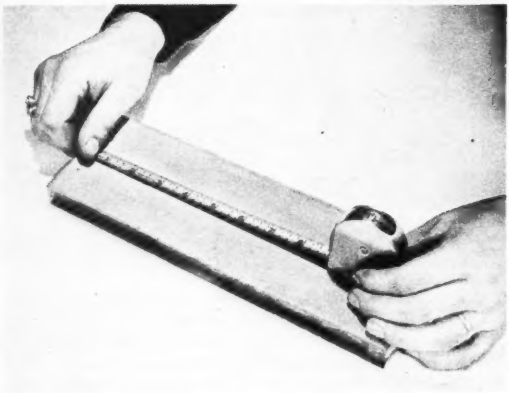


Cat-Cycle eases life of feline auto accident victim. He was toothless and paralyzed when Mrs. A. H. Cooper of Fort Worth took him in. She provided him with a cradle on wheels for his paralyzed hind quarters and had a set of molers made.

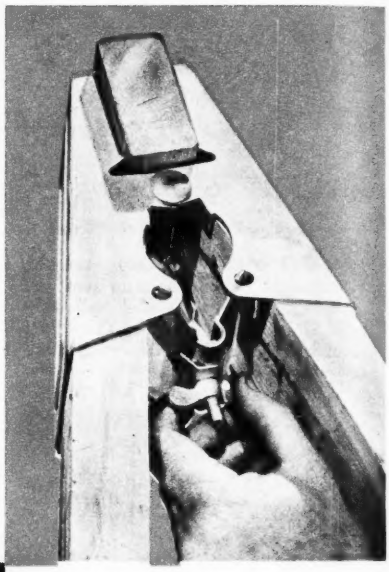
new
IN THE SHOP



Handy Handle makes a real tool out of any file or bit. It's a non-slip gripper that you can switch from one blade to another in five seconds. Speed Corporation of Portland, Ore., is the manufacturer of it.



Measure By Dial with the new Metro-Meter tape measure, above. A plastic window in the stainless steel case permits accurate readings for inside and outside measurements. Available from Herbert W. Ryan, 32 West 46th Street, New York City.



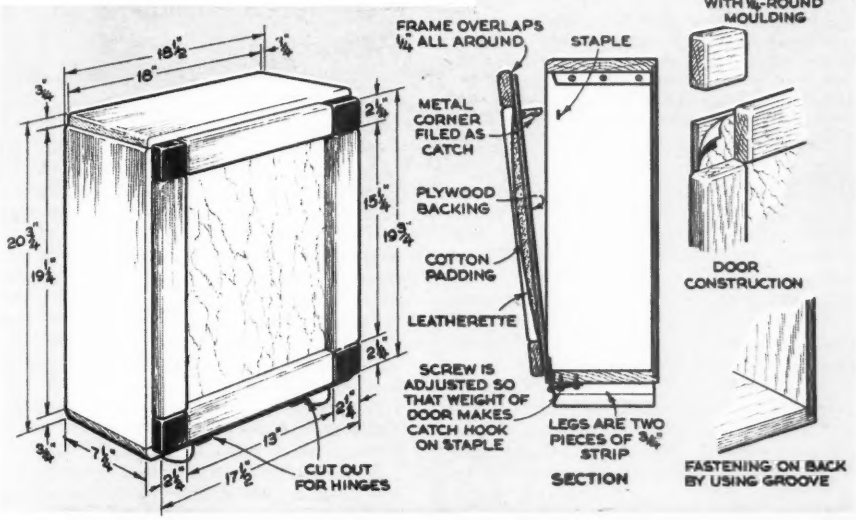
Horse Trouble? Here's a sawhorse bracket which requires no nails or bolts. Just insert lumber in sockets and tighten wing nut. It's made by the Dalton Manufacturing Co., with offices in St. Louis, Mo.

Spotlight Gun for speedy soldering produces necessary heat within five seconds. Then it pin-points the object you're working on. The Weller Manufacturing Co., of Easton, Pa., makes and markets the gun.

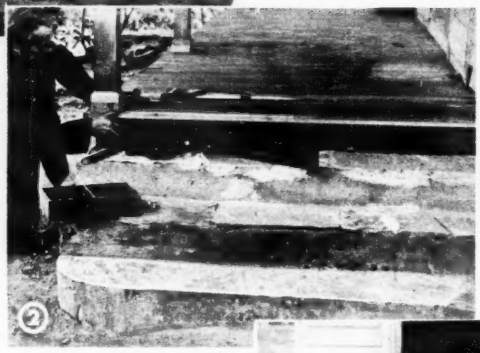
Utility Cabinet

Provides storage for those oversize record albums and scrapbooks.

THIS basically simple design is made from 1-in. stock. Note that the top is ½ in. shorter than the bottom to allow for the double-rolled joint. Two alternative methods of fastening the back are given—the "groove" method is the neater, but the "quarter-round" method is the simpler. Hardware for the door consists of two strap hinges and two metal corners. The weight of the door keeps it closed. The screws fastening the hinges to the bottom are left loose enough to permit the door about ⅛ in. play. As the door is closed, the metal corners ride up on the staples until the notch catches. Finish with a coat of stain, four coats of thinned shellac (rubbing down with steel wool between each application), and a final coat of liquid wax.—*Robert Hoppough.*



Making Steps From Stone



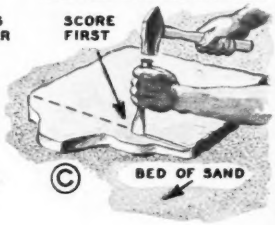


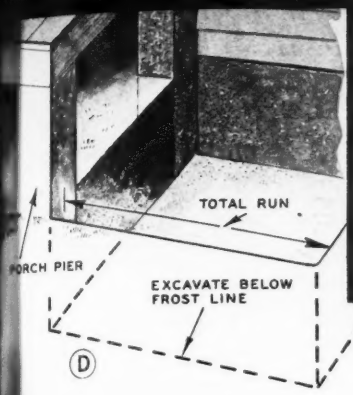
FIG. 1

Before adding stone steps to an existing porch, as is being done in the upper two photos, make all necessary repairs to the porch itself. If new piers must be put in, build them of stone and tie them into the steps. And if the porch beams are rotten, renew them before proceeding with steps.

COMMON stone—the kind found in fields and abandoned walls—can be put to use in building steps for porches, terraces, and other locations where permanent, weatherproof construction is desirable. The following method, which is basic, can be employed, with variations in design, for most stone-step projects.

Stone may be divided into two types: solid and laminated. The solid is the harder to work. Usually a heavy blow with a sledge is required to break open ball-shaped stones of this type; and some experience is necessary to determine the exact spot at which a blow must be struck in order to produce a clean, flat break. Examine the stone, looking for faults in the grain structure—they indicate how it is likely to break. With practice, you will be able to make fairly accurate determinations.

Laminated stone may be split into slabs with a stone cutter's hammer. Stand the stone on edge and strike blows along the lines of lamination, as shown in Fig. 1A. Irregularities resulting from uneven cleavage can be leveled off with a brick hammer or a chisel, as in Fig. 1B. To prevent accidental breaks when squaring up the flags, lay them flat in sand, as shown in Fig. 1C, and use a chisel and light ham-



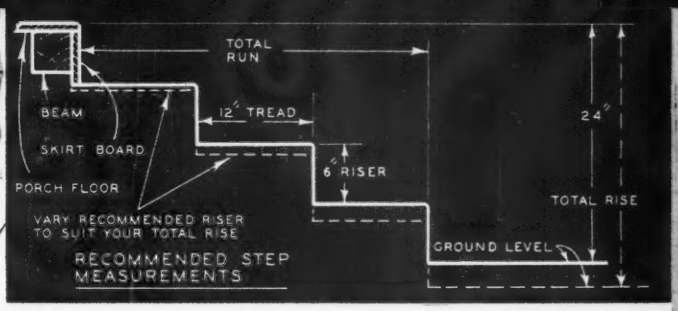
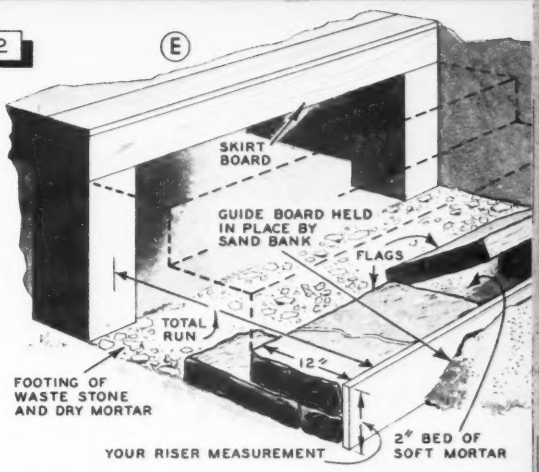


FIG. 2



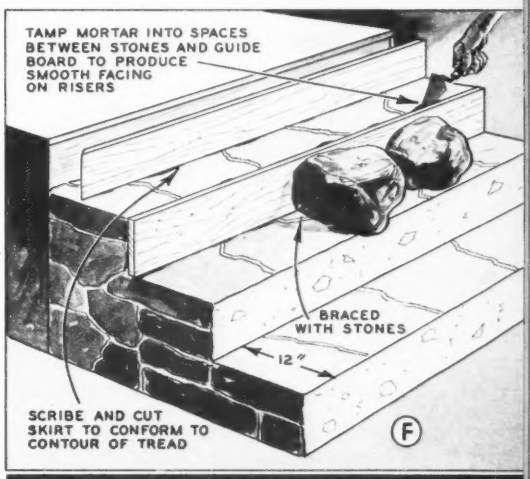
mer blows. For the exposed portions of steps, avoid using shale, scaly or flaky stone, and stones made soft by prolonged life underground. These varieties won't wear well, but will crumble under hard use. Broken up, however, and combined with dry mortar, rejected material may be used as footing and filler.

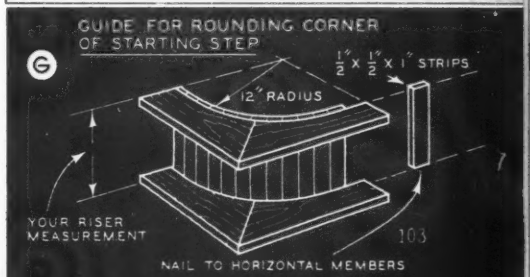
The step measurements given in Fig. 2 are safe and comfortable. For safety's sake, don't vary the recommended 6-in. rise more than 1 in. Instead, increase or decrease the number of steps in order to bring your riser figure closer to the recommended figure. For example, to suit a total rise of 29 in., use four treads with five 5.8-in. risers rather than three treads with four 7.25-in. risers.

If you live where it freezes during the winter, don't neglect to carry the footing down below the frost line, as indicated in Fig. 2D. Otherwise, the steps are likely to heave and crack.

In building the steps, use the best flagstones for the treads, with the flatter face of each on top. Begin with the bottom step, as shown in Fig. 2E, after first setting up the guide board plumb and level at the determined total-run distance from the porch. Lay each flag flush with the top edge of the guide. Then, to give the steps a slight downward pitch for draining off rain water, depress the front edge about ⅛ in. below the top of the board. After the flags are laid, fill the joints with mortar and wipe off the excess. When the mortar has set up reasonably hard, remove the guide and smooth up the riser with trowel and mortar; then scrub the tread with a stiff brush and water to bring out the flagstone pattern and proceed with laying the next step, as shown in Fig. 2F.

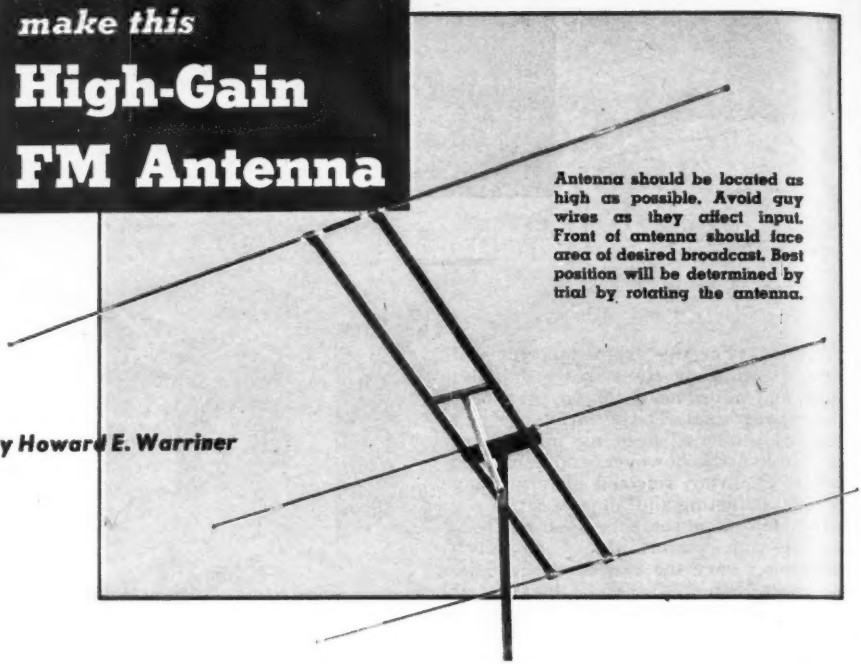
The fixture shown in Fig. 2G is used when laying bottom steps with round corners. To use, butt it against the end of the guide board, as shown in Photo No. 1, and bank sand [*Continued on page* 146]





make this

High-Gain FM Antenna



Antenna should be located as high as possible. Avoid guy wires as they affect input. Front of antenna should face area of desired broadcast. Best position will be determined by trial by rotating the antenna.

By Howard E. Warriner

There is nothing at all mysterious about an FM antenna; this one is made of curtain rods and should cost about a dollar.

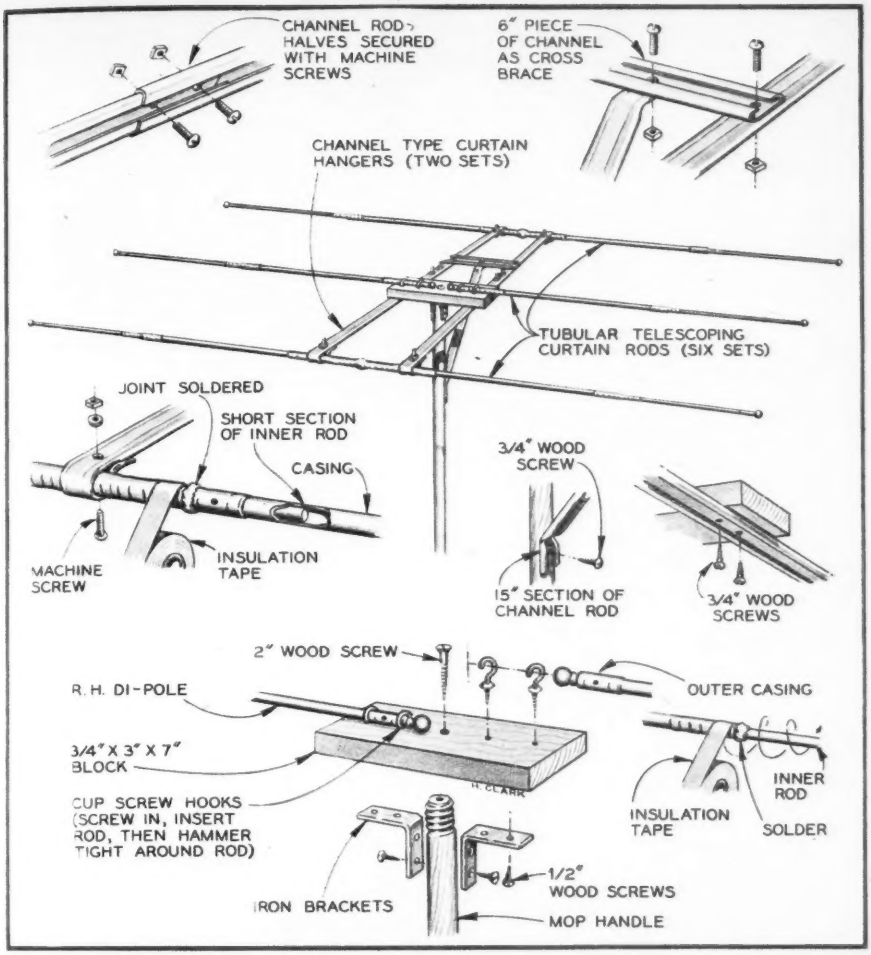
THIS high-gain Frequency Modulation antenna will give you the maximum reception from your FM set or tuner. It is made of seven sets of round telescoping curtain rods and three flat telescoping curtain supports plus the usual assortment of small hardware parts.

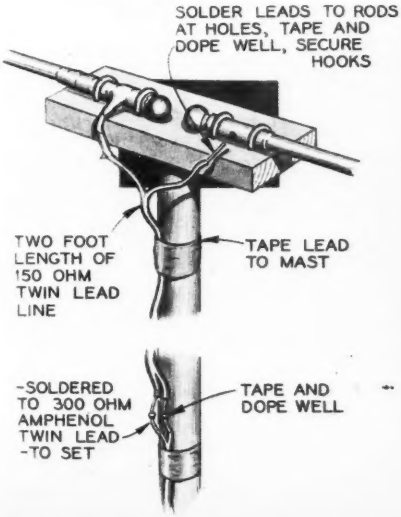
The center rods are the active elements of the quarter-wave dipole and are mounted on the block of wood with two cup screw hooks bent around the tape-insulated ends. The mounting block, the center of the antenna system, is supported by a mop handle, screwed into place and strengthened by two brackets. These two sections of the dipole are connected to your radio through a 2 ft. length of 150 ohm twin-lead line soldered at the antenna end, with its other end soldered to a 300 ohm amphenol twin-lead going down to the set. This acts as a transformer at the antenna and makes for a high transfer of energy down to the set. The lead from the antenna can be taped to the supporting pole.

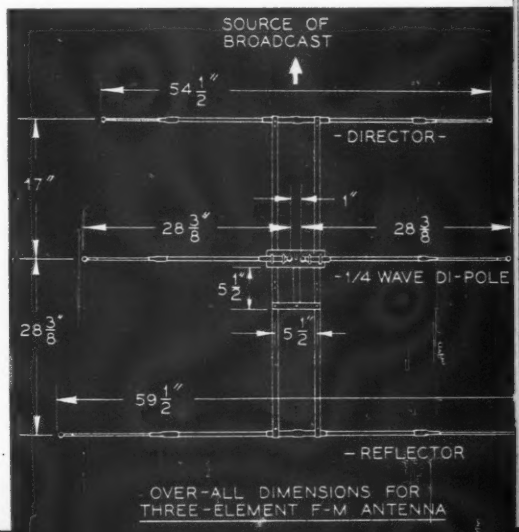
The addition of the reflector and director element rods, beam and amplify signals picked up by the dipole. These elements are not electrically connected to the dipole. Their action simply modifies the dipole and screens out unwanted reflected signals.

The reflector and director are also made of two sets of round telescoping curtain rods extended for proper dimensions as shown. The balls at the ends of the casings are removed, the rods being joined by inserting a short piece of an inner rod. All joints in the antenna are soldered and taped to insure perfect electrical conduction. The reflector and director are supported by channel curtain supports, extended to the dimensions shown. This framework is held in place under the center wood block by wood screws. The ends of these supports are flattened to bend around the taped areas of the reflector and director and then bolted into place. A diagonal stabilizer bracket is provided for rigidity.

All elements must be insulated with plenty of tape as there is no electrical connection between them or their supports. Paint all taped areas with dope. •







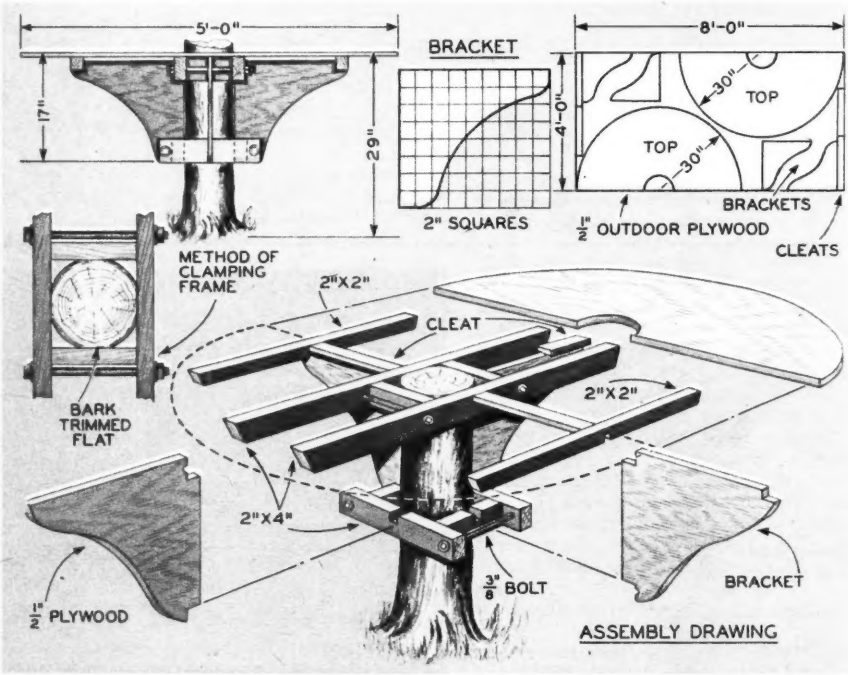
OVER-ALL DIMENSIONS FOR THREE-ELEMENT F-M ANTENNA

TREE TABLE

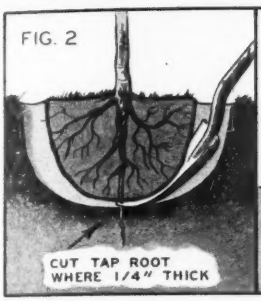
FOOD always seems to taste better when eaten out-of-doors. And this despite the forays of ants, caterpillars and kindred insects. Any picnic-loving family will agree with this sentiment. If you have a tree in your back yard, why not try picnicking at home? This way you can always run back into the house for the salt-cellars or the napkins which Sis forgot.

By using a clamping arrangement to support this table, no spikes or screws need be driven into the trunk. Trim bark flat as a seat for the 2x4's.

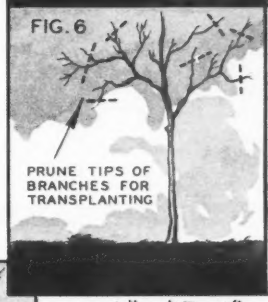
The top, in halves, brackets and cleats, can be cut from a stock panel of 4x8 ft. plywood, ½ in. thick, the waterproof kind. After trimming the bark no more than necessary, square up the parallel joints and install a second clamp below. The plywood brackets are mortised into the frame and secured with screws. Top halves are then laid on and screwed down. The screws should be countersunk and puttied over after shellac has been applied. Bind the edge of the top with half-round moulding, secured with small oval head screws. •

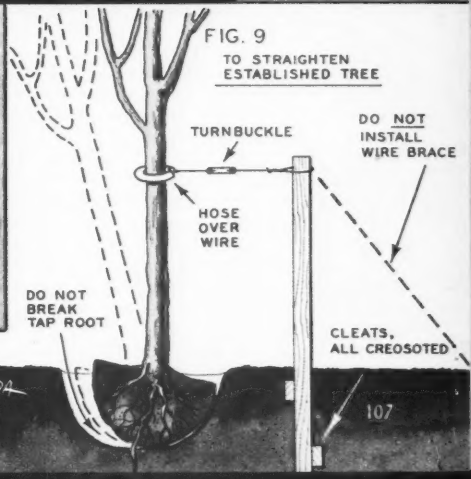


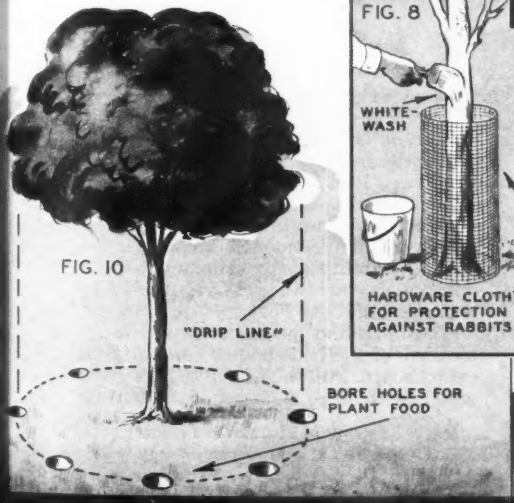
Fall Is Transplanting Time



SMALL trees can be safely transplanted in the fall by following these directions. *Fig. 1.* Dig deeply around the tree on a line with the tips of the branches. *Fig. 2.* Using a sharp spade, cut through the tap root. *Fig. 3.* Wrap burlap around the root ball and secure with 10-penny nails. *Fig. 4.* Make sure the root ball is completely covered. *Fig. 5.* Make the new excavation twice the diameter of the root ball. Place the tree and fill with rich loam, meanwhile running water in slowly. *Fig. 6.* Prune the branches to help the tree recover from loss of feeding roots. *Fig. 7.* If exposed to very hot sun, erect a cheesecloth or unbleached-muslin shade. *Fig. 8.* Further to protect from sunburn, whitewash trunk. A hardware-cloth guard protects against rabbits. *Fig. 9.* Straightening an established tree is easy, but be sure not to break the tap root. *Fig. 10.* When tree doesn't flourish, feed with plant food. •





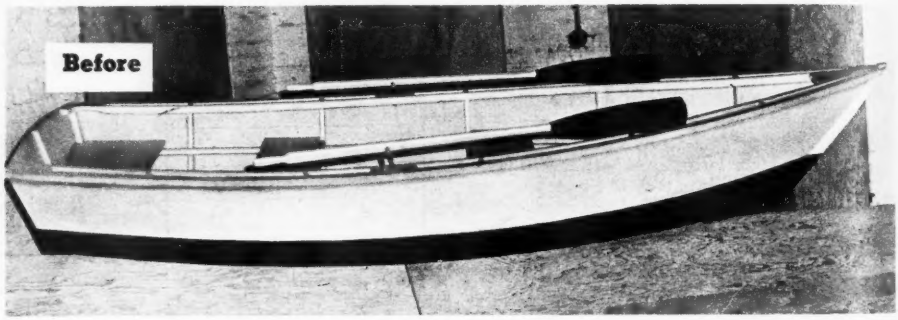


duckling

MI's Boating Editor tells you just how to go about changing any 10 to 14-ft. rowboat into a fast-moving sailboat.

By John G. Kingdon

Rowboat converted to sailboat—"Ugly Duckling" to "Swan."



WITH little labor and expense you can change your prosaic rowboat over into a snappy sailboat that in the slightest breeze will scoot right along with no effort on your part. All hardware can be purchased from a marine supply house or a waterfront hardware store.

The principles of design involved in converting a rowboat for sailing have been discussed on these pages by William F. Crosby (MI, Jan. '47). *Duckling* happens to be 11½ ft. long, but the rig shown can be used on *any* rowboat that is 10 to 14 ft. long. Using Mr. Crosby's article as a guide, *Duckling* has been given a sail area of 84½ square feet. The center of effort of the sail is about 6 in. ahead of the center of lateral resistance of the hull, which, on a waterline length of about 10 ft., gives a lead of 5%—this is well within Mr. Crosby's specified limits of 4 to 7%.

One word of caution before going ahead with your conversion. Sailmaking is beyond the ability of the usual amateur; so splurge on your sail and have it made by a professional.

You must find the center of lateral resistance of the boat before mounting the centerboard. Pull the hull sideways in the water with a rope attached to various

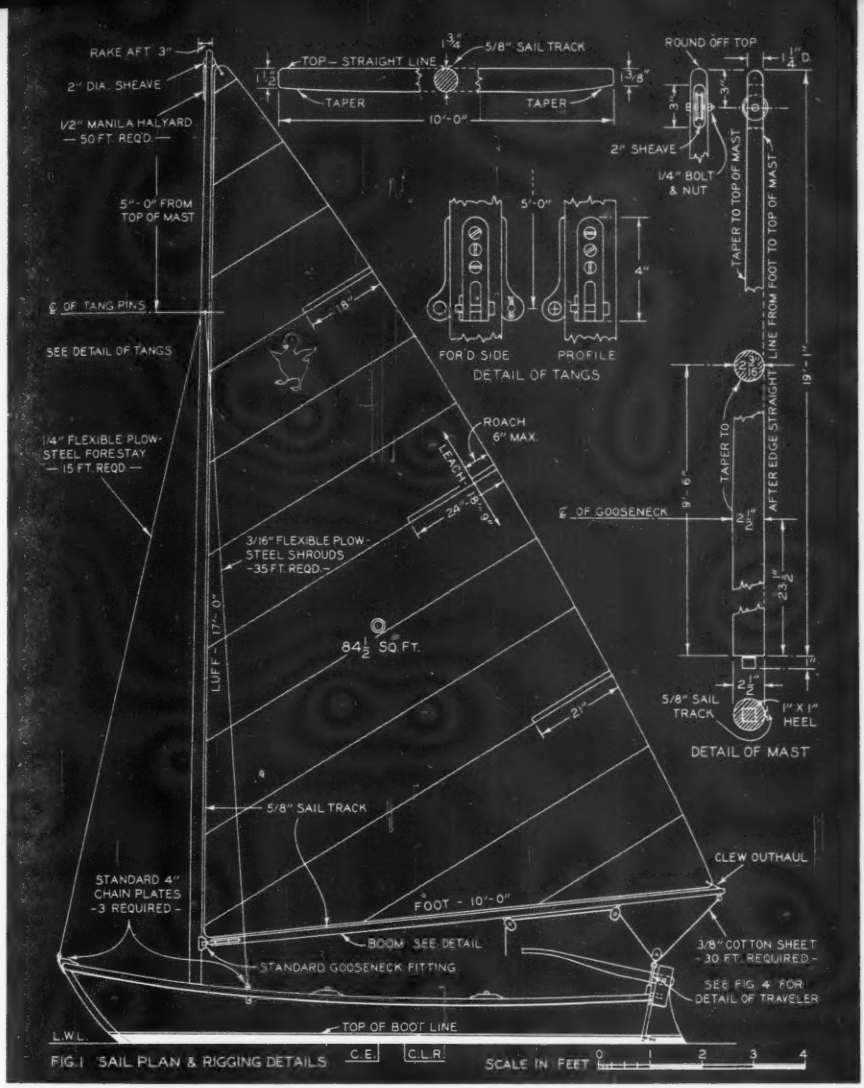
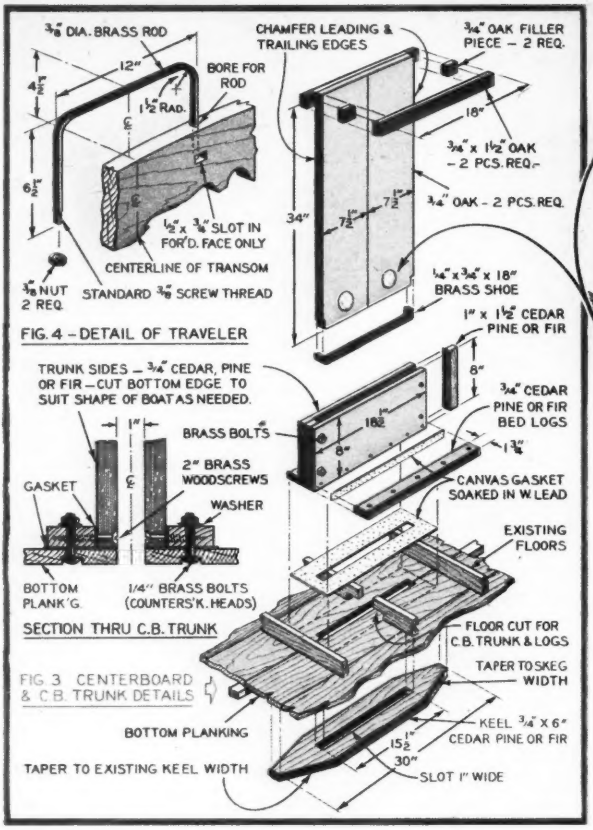


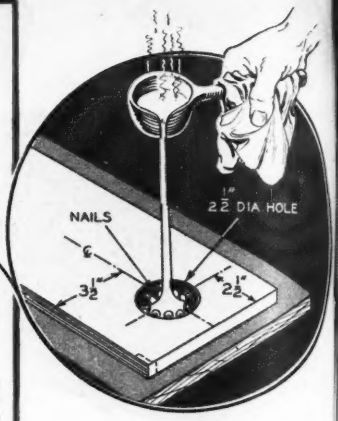
FIG. 1 SAIL PLAN & RIGGING DETAILS

points on the gunwale, as shown in Fig. 5. When the point is found where the boat follows the rope evenly, not tending to fall away at the bow or stern, that point lies on a line through the center of lateral resistance. The centerboard should be installed so the joint between the two pieces making up the board is even with the point.

Duckling has a dagger centerboard. Such a board requires no gear; so is economical and simple to construct and use. Make it according to the dimensions shown in Fig. 3. Bore two 2½-in. holes near the bottom, drive nails spokewise halfway in, and, laying the centerboard flat on a piece of scrap, fill the holes with molten lead.

The centerboard trunk comes next. Work especially carefully here, as this is an awkward place to make watertight. Cut away the skeg for a distance of 15 in. forward and 15 in. aft of the center of lateral resistance; then cut a 1x15½-in. hole through the bottom of the boat along the centerline. Cut a similar hole in the new keel piece and taper the ends to skeg width. Build up the trunk as shown in Fig. 3, bedding all joints in white lead. Soak a piece of canvas in white lead and





lay it around the hole in the bottom of the boat. Place the trunk on top of the canvas and drive bolts up through the keel, bottom, and canvas into the trunk. If it is necessary to cut away a floor timber for the trunk, screw ¼x2x2-in. angle clips, 1 in. long, to the floor and trunk. If a seat must be similarly cut, screw ½x1½-in. cleats to the seat and trunk.

Plane the mast to shape from a 3-in.-square, straight-grained piece of spruce, 20 ft. long (see Fig. 1). Square off the bottom end to fit in a square socket in the mast step. Note that the after edge of the mast is a perfectly straight line so it will take the ⅝-in. sail track. Attach three tangs and a masthead sheave, as shown. Make the boom in a similar manner from a 2-in.-square by 10-ft. piece of spruce. Attach it to the mast 23½ in. above the foot with a standard gooseneck fitting.

The mast is set in the boat 49 in. ahead of the center of lateral resistance. Make the mast step long enough so it cuts through one floor timber and butts against the floor next forward and aft. Screw ¼x2x2-in. angle clips, 1 in. long, to the floors and the mast step. The mast bench is supported by the seat risers or, if your boat doesn't have continuous seat risers, by special risers added at the same height as the seat risers. Cut a 3¼-in. hole in the bench to take the mast and six wedges.

The shroud plates go under the guards, the guard fastenings being eased and the guards sprung out to accomplish this. Bend the forestay chain plate so the eye lines up with forestay and fasten it to stem. Make the two shrouds of $\frac{3}{16}$-in. flexible plow steel

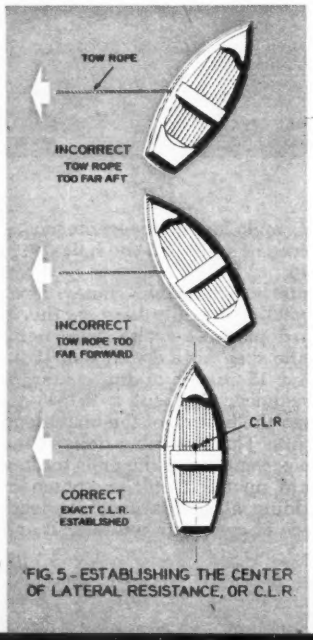


FIG. 5 - ESTABLISHING THE CENTER OF LATERAL RESISTANCE, OR C.L.R.

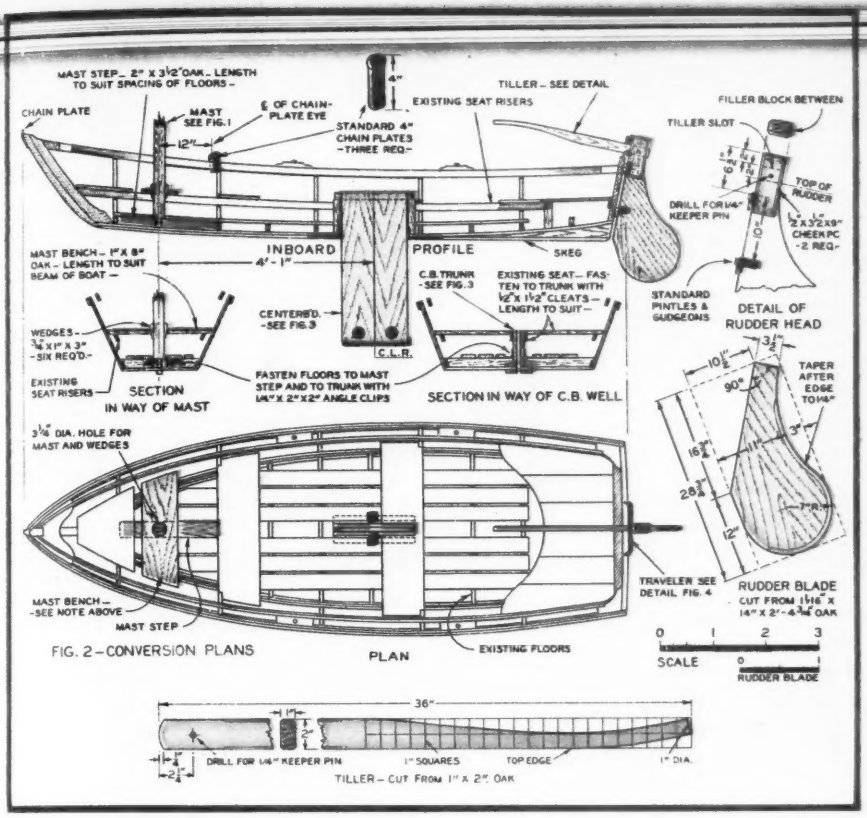


FIG. 2 – CONVERSION PLANS

and the forestay of similar material, ¼ in. in diameter. Small turnbuckles go on these near the chain plates to facilitate adjustment of tension. The manila halyard is lead over the masthead sheave, down through a block mounted on the mast bench, and back to a cleat near the helmsman. The cotton sheet is lead over three blocks and down to a jam cleat near the helmsman. A brass-rod traveler is set into the transom and held by bolts in slots. •

BILL OF MATERIALS

Cedar, Pine, or Fir

Keel—1 pc., ¾ x 6 x 30 in.
Centerboard Trunk—2 pcs., ⅜ x 1¾ x 18½ in.
2 pcs., ¾ x 8 x 18½ in.
2 pcs., 1 x 1½ x 8 in.
Centerboard-Trunk Cleats—2 pcs., ½ x 1½ in., length to suit

White Oak

Centerboard—2 pcs., ¾ x 7½ x 34 in.
2 pcs., ¾ x 1½ x 18 in.
2 pcs., ¾ x 1½ x 1½ in.
Mast Step—1 pc., 1¾ x 3½ in., length to suit
Mast Bench—1 pc., 13/16 x 8 in., length to suit
Mast Wedges—6 pcs., ¾ x 1 x 3 in.
Rudder—1 pc., 1 1/16 x 14 x 28¾ in.
Rudder Cheek Pieces—2 pcs., ½ x 3½ x 9 in.
Rudder Filler Piece—1 pc., 1 1/16 x 2 x 3½ in.
Tiller—1 pc., 1 x 2 x 36 in.

Spruce

Mast—1 pc., 2½ x 2½ in., 20 ft. long
Boom—1 pc., 1¾ x 1¾ in., 10 ft. long

Miscellaneous

Fastenings—brass, size as required
Centerboard Shoe—1 pc., ¼ x ¾ x 18-in. brass
Centerboard Weights—10 lb. of lead
Centerboard-Trunk Gasket—canvas
Angle Clips—10 pcs., ¼ x 2 x 2-in. brass angle bar, 1 in. long
Chain Plates—3 req., standard 4-in. size
Shrouds—35 ft. of 3/16-in. dia. flexible plow steel
Forestay—15 ft. of ¼-in. dia. flexible plow steel
Tangs—3 req., standard 4-in. size
Masthead Sheave—1 req., 2-in. dia.
Halyard—50 ft. of ½-in. dia. manila rope
Sail Track—27 ft. of ⅝-in. track
Sail—See Fig. 1
Gooseneck—1 req., standard
Sheet—30 ft. of ⅜-in. dia. cotton rope
Sheet Blocks—3 req., size to take ⅜-in. rope
Rudder Hangers—2 prs. req., standard gudgeons and pintles
Rudder Pin—1 pc., ¼ x 3-in. brass
Traveler—1 pc., ⅜ x 24-in. brass

LARGE-SCALE PLANS
will greatly simplify construction. Send $1 to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Connecticut. Please specify Plan No. B-158.

Photos by Mike Bonvino

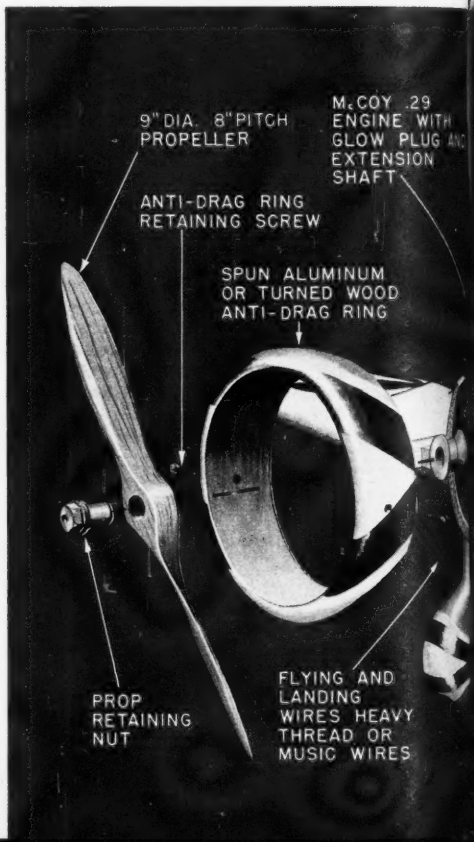
P-26A

Build this authentic 27-inch scale model of the first all-metal low wing fighter to fly for the U. S. Army. Power with most .19 to .49 engines.

By Walter A. Musciano

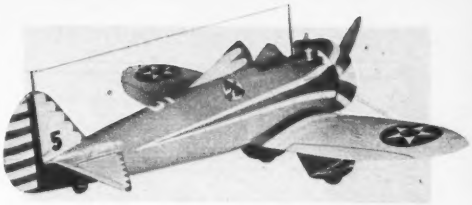
THE colorful U. S. Army "pea-shooter" described in this article was the first of the low-wing all-metal fighters. In view of its red, white, blue, yellow and black color scheme along with the distinctive appearance of the high headrest and full wheel covers, this scale control-line model of the P-26A has more glamor in its tail wheel than you will find in most models on the flying field today.

Designed by the Boeing Airplane Company of Seattle, Washington, makers of the famous B-17 and B-29 Super Fortress, the prototype was delivered to the U. S. Army Air Force for tests in 1933. The first three models were designated



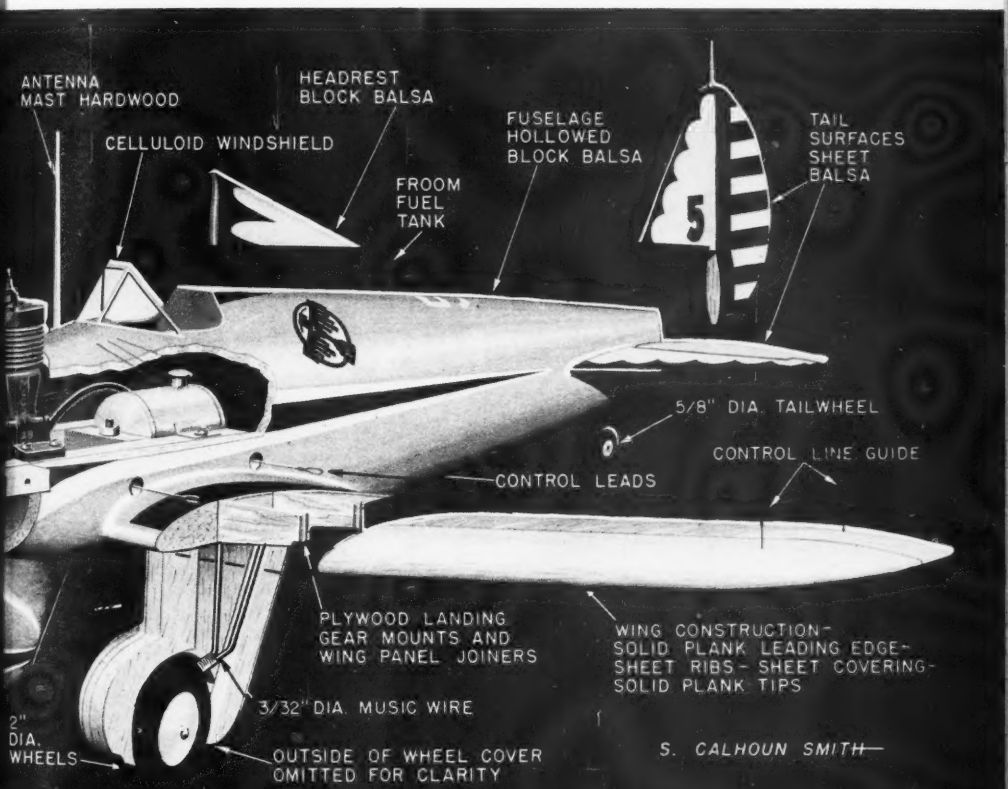
XP-936 and the army was so pleased with this tiny pursuit plane (only 27 ft. wing span) that an order was given for 111 more to be designated P-26A. Further orders for two P-26B and twenty-three P-26C models brought the total to 136 planes of this design—which was a big order in those days. A Pratt and Whitney "Wasp" of 550 hp produced a speed of 234 mph. Range was 635 miles and the ceiling 28,000 feet. Standard models had one .30 and one .50 caliber Browning machine gun in the fuselage side. However, some experimental models mounted additional guns in the wing root. The P-26A was equipped with flaps which lowered the landing speed to 73 mph. Considered one of the finest fighting ships of its day, the P-26A was copied by many other designers. It is said that the Russian "Mosca" and the Italian "Bergliamacci" fighters were patterned after this highly efficient pursuit.

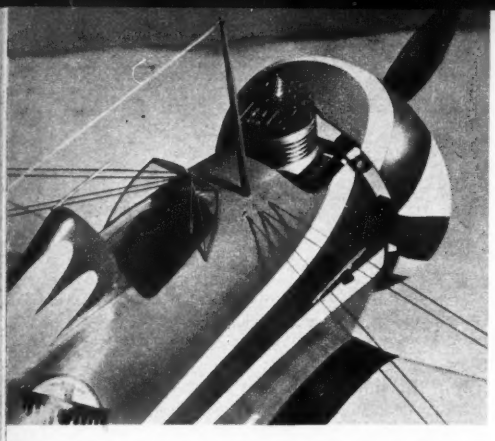
Our model was built to the scale of one inch to the foot which gives the plane a 27-inch wing span. We selected the McCoy .29 to power the original model but any engine from .19 to .49 can be installed. Using a McCoy "Hot Point" plug, the necessity of an electric ignition system was eliminated with a great saving in weight which in turn produced a model that will glide to a landing rather than drop like a rock when the power cuts.



Displaying its gay colors, this P-26A makes a fine model. Squadron insignia is behind headrest.

Study your full size plans carefully and then proceed with the construction. Select two medium soft blocks of straight-grained balsa of the specified size and spot-cement together along the horizontal center line. When this is dry, trace the plan view on the block and cut to shape with a coping saw. Repeat this procedure for the side and then carve the fuselage to shape as is done in conventional solid model practice. No. ½

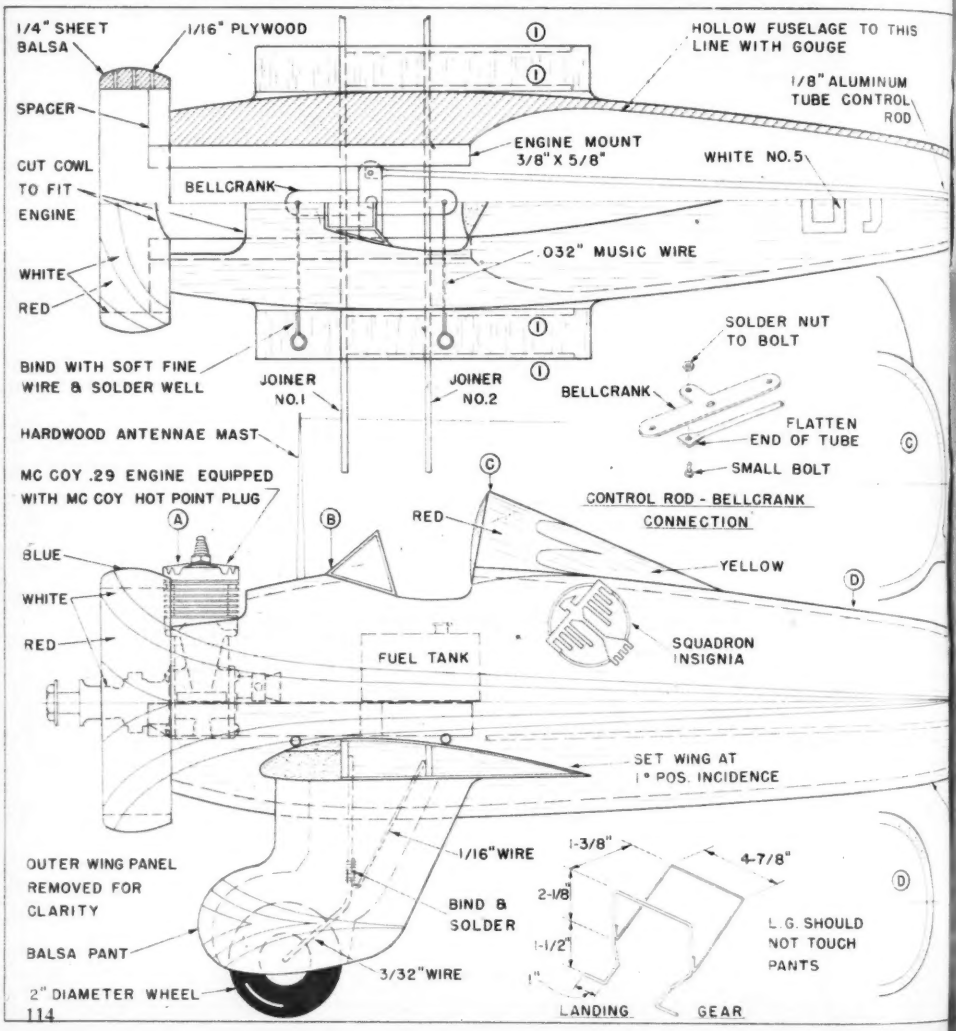




Close-up of nose detail. Carve cowl ring from solid stock if your hobby shop cannot supply you.

sandpaper followed by No. 00 paper are used to finish the external contours of the fuselage. Cut apart the two halves and gouge out the interior to the lines indicated. An X-acto gouge is ideal for this operation. Bend the landing gear as shown, bind the joint with soft wire and then solder. Cut the 1/8 in. plywood landing gear supporting joiner and wrap the landing gear to it, using strong buttonhole type thread. Mark the location of the landing gear on the fuselage and then saw two $\frac{3}{16}$ in. notches as indicated. Cement the landing gear assembly in these notches and fill in with scrap balsa.

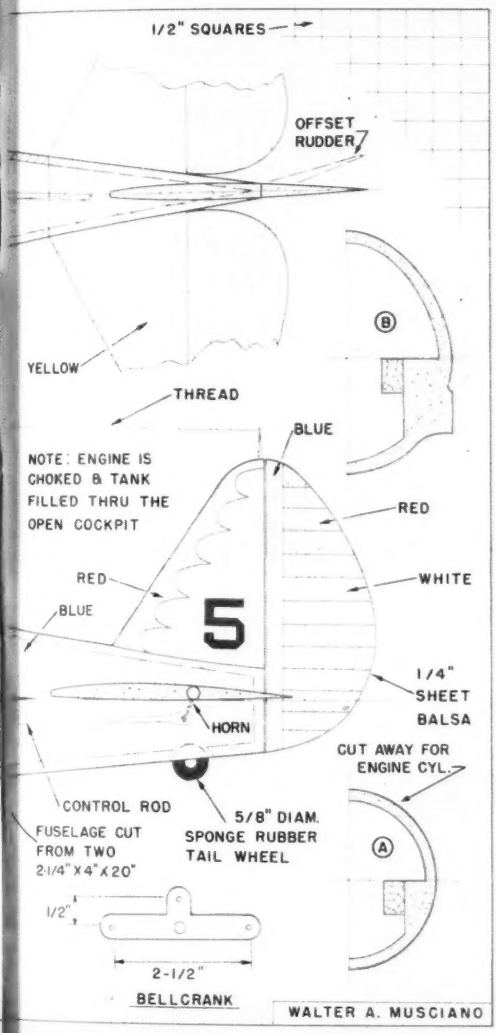
The engine mounts are next. It is best to cement the engine and bellcrank support to the mounts before they are fitted



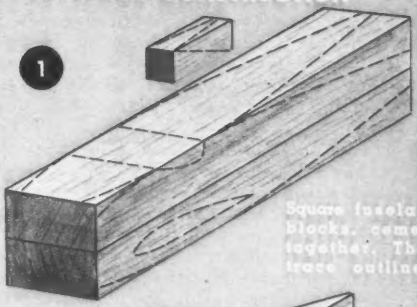
to the plane. This will insure a good tight fit. Use plenty of cement or Weldwood glue when attaching the mounts.

Using scrap balsa, cut the headrest in much the same manner as the fuselage was made. Attach to the fuselage and fillet with cement.

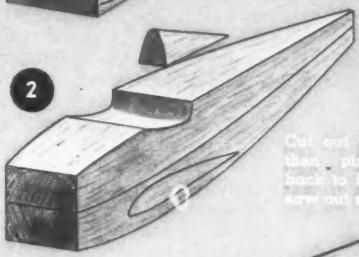
The tail surfaces are cut from ¼ in. sheet balsa and sanded to a streamline cross section. Note that the hinge is practically invisible when installed and is of a design which will give practically frictionless movement. Aluminum tubing and fine music wire are required. A section of tissue should be used to reinforce the tubing installation. When the horn has been attached and control rod connected, the stabilizer can be cemented



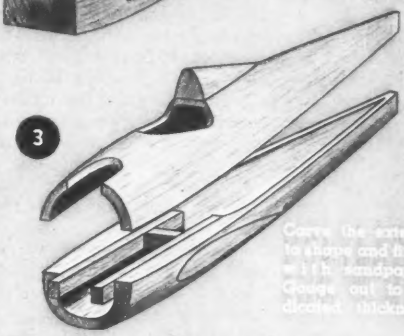
FUSELAGE CONSTRUCTION



1 Square fuselage blocks, cement together. Then trace outlines.



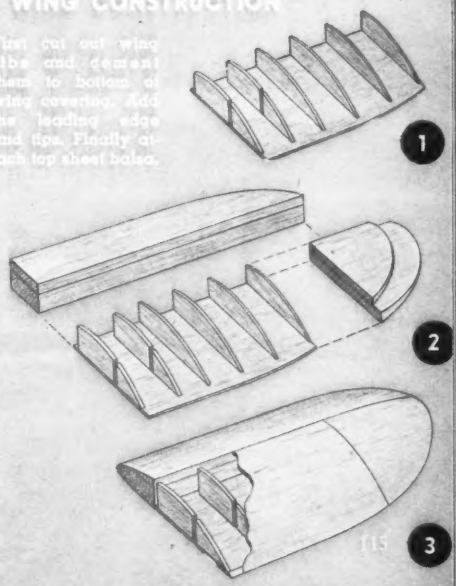
2 Cut out top view, then pin pieces back to block and saw out side view.



3 Carve the exterior to shape and finish with sandpaper. Groove out to indicated thickness.

WING CONSTRUCTION

First cut out wing ribs and cement them to bottom of wing covering. Add the leading edge and tips. Finally attach top sheet balsa.



1 2 3

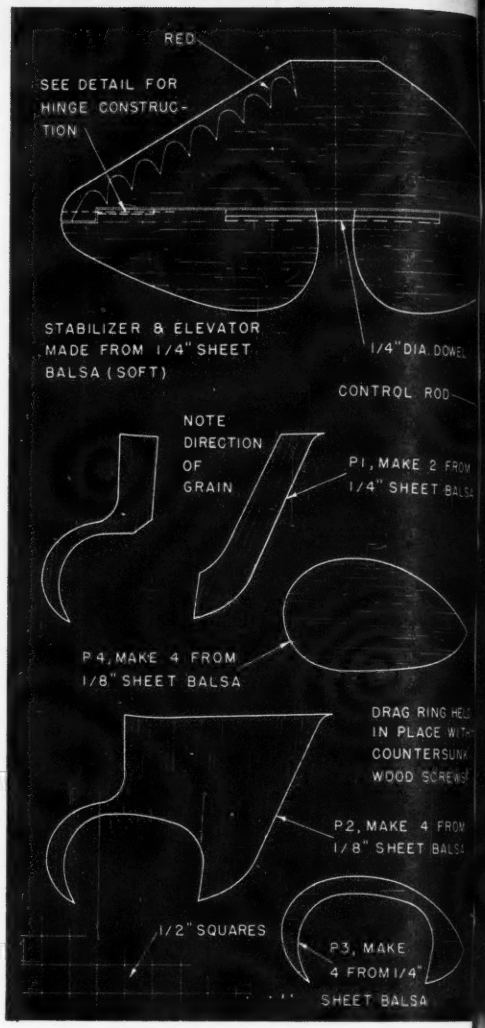
permanently to the lower fuselage shell. Mount the fuel tank and cement the two fuselage halves together. Be sure to cut away the upper shell to fit the stabilizer. Add the fin now and fillet the tail with cement.

The outer wing panel is also quite simple. Cement ½ in. and ¼ in. thick balsa sheet together to obtain the correct thickness for the leading edge. The wing tips are also made in this manner. Cut the wing outline on $\frac{1}{16}$ in. sheet balsa. It will probably be necessary to put two sheets together to attain the correct width. Lay one of the sheets on the work table for each wing. Be sure to make one left and one right panel. Mark off the rib locations on this sheet balsa and cement the ribs in place. Now add the leading edge, bevel the trailing edge of the lower covering and then add the top sheet cover. The covering should be cemented well to the ribs and leading edge. Add the wing tip and set the assembly aside to dry.

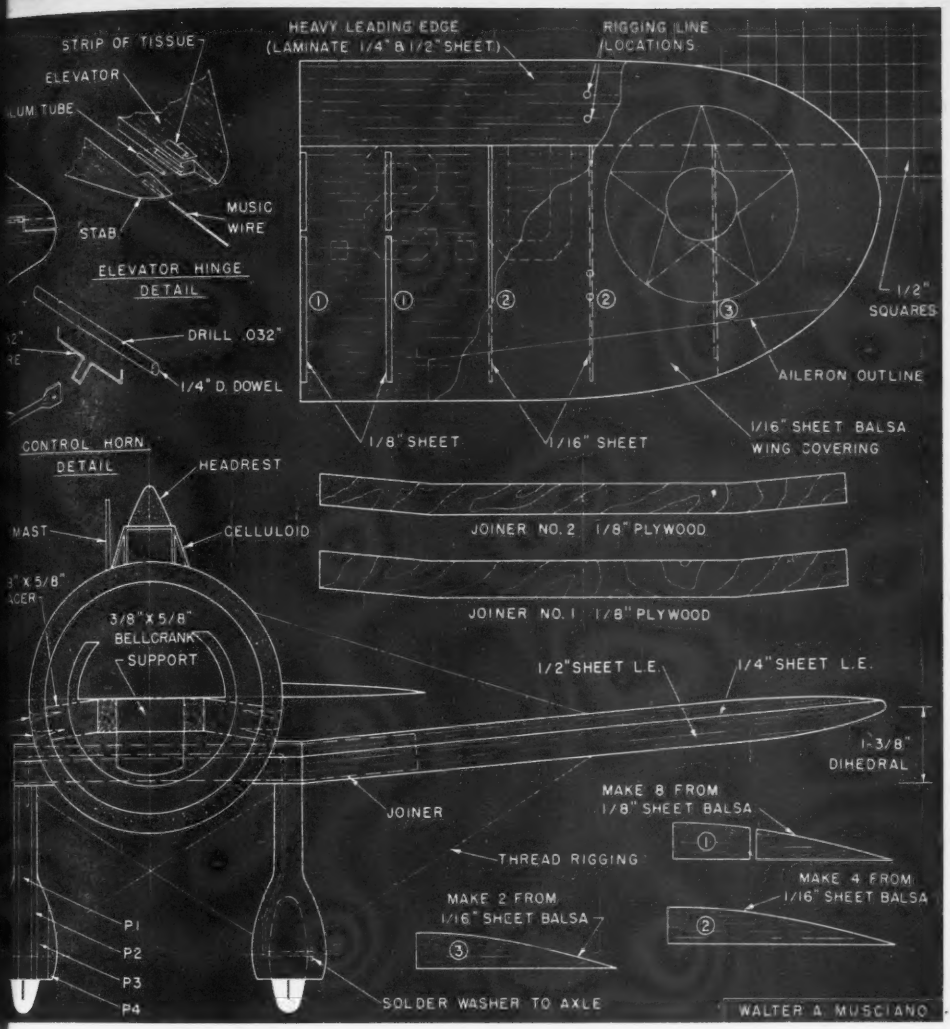
Trim the edges of the wing after the cement has dried. Sand until smooth and attach the panels to the plywood landing gear mount joiner by inserting the joiners into the slot provided and cementing the plywood to the landing edge and ribs as well as the $\frac{1}{16}$ in. covering. Do not spare the cement in this operation. Check the panels for correct dihedral and allow the assembly to dry.

The wheel covers can now be made. Cut the required number of pieces from the specified stock and cement them together. In order to be able to install the cover over the wheel and landing gear later, the cover must be partly assembled only up to piece P-1. This piece can be cemented to either half.

After the wing joint is dry, the wing



Rarin' to go. Wing wires are for scale only and may be omitted for flying. Engine is a McCoy .19.



root can be inserted between the fuselage and outer panel. First install the leading edge then add the ribs and sheet balsa covering. Carve and sand smooth. Install the wheel covers and join together to enclose the landing gear wire. When dry, carve and sand to shape.

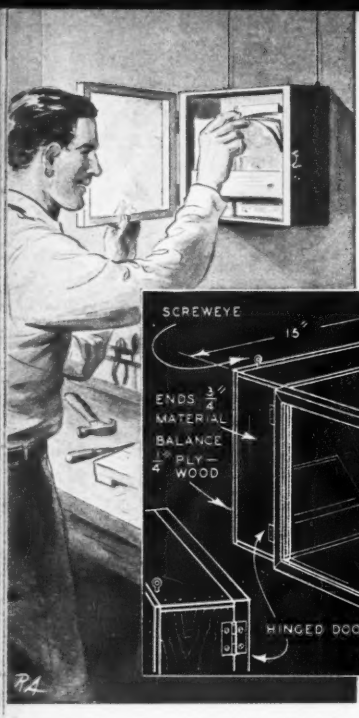
The ring cowl on the original model was turned on a lathe from hardwood. An aluminum ring would be ideal but the author could not locate one. If neither of the above is available a good cowl ring can be made of alternate layers of ¼ in. balsa and $\frac{1}{16}$ in. plywood cut in rings and cemented together. This can be carved and sanded when dry. Two wood screws hold the ring to the hardwood spacer, which is attached to the engine mounts, on each side.

The model is now ready to be painted. This procedure is very important and should not be hurried because the paint job can ruin the model even if the structure is perfect. [*Continued on page* 146]

FULL SIZE PLANS

will greatly simplify construction. Send 50c to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Connecticut. Please specify Plan No. 393

SHOP SHORTS

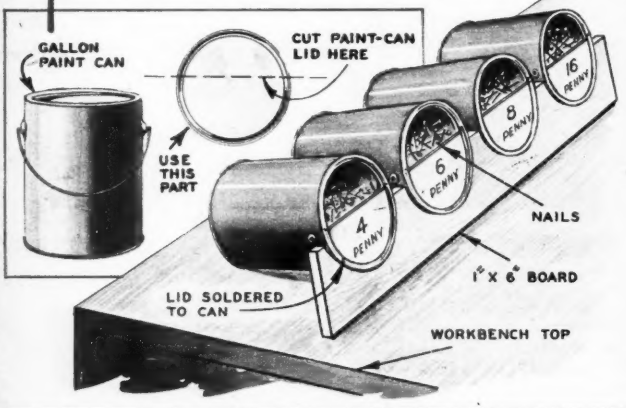


Handy Cabinet

hung over your workbench will nicely hold an open issue of MECHANIX ILLUSTRATED so the plans of your latest project are in full view while you're working on it. This aids in keeping your bench clear and also preserves the magazine. When not working on a project, use the cabinet for storage.

Orderly Nail Storage

on your bench is easy. Gather together a few old, clean one-gallon paint cans, cut off a part of each lid, and print on the nail sizes; then add a 1x6-in. support.

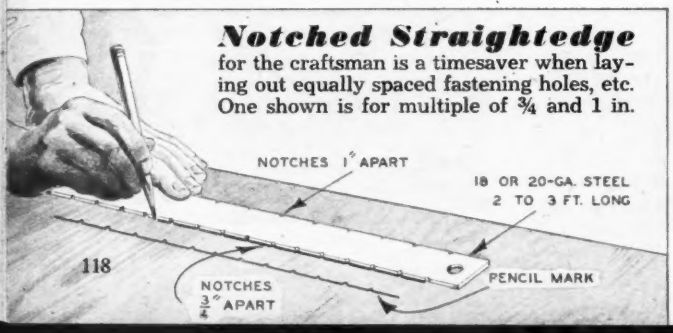


Safety Holder

for your soldering iron is made from a quart can just by cutting away part of a side and adding a slot in the bottom so the iron can be slipped in. Fasten it to the wall with screws. With it, there is no danger of accidental burns.

Notched Straightedge

for the craftsman is a timesaver when laying out equally spaced fastening holes, etc. One shown is for multiple of 3/4 and 1 in.

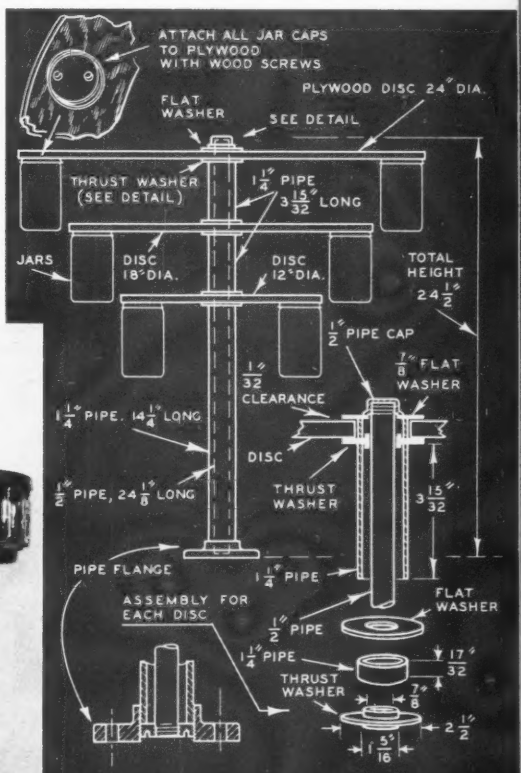


Accurate Saw Height for exact depth of circular-saw cut can be ascertained quickly by using a combination square. This is a better method than using the saw's built-in scale, for the latter is usually inconvenient and not too accurate.

Easy-Starting Siphon. A simple way of starting a siphon uses a faucet washer secured to a piece of wire and inserted in hose. Put hose in liquid and pull wire, causing vacuum.

Tape-Roll ends, particularly during hot weather, frequently defy all attempts to loosen them. Such an end is easily lifted if you place an ordinary washer under it.

Selecting Small Parts at a glance is simple if they are stored in this rotating "stock room." You'll need 45 one-pint jars, some pipe and fittings, and about 8 sq. ft. of ½-in. plywood. Each of the three plywood disks has a $1\frac{11}{16}$-in. hole through its center. The top disk has 21 jars; the middle one, 16 jars; and the bottom one, eight jars. Petroleum jelly lubricates between the disks and washers.



MI's Portable Six-Inch Telescope

We are now ready to install the mirror and finally point the big tube at the heavens.

By Robert Brightman

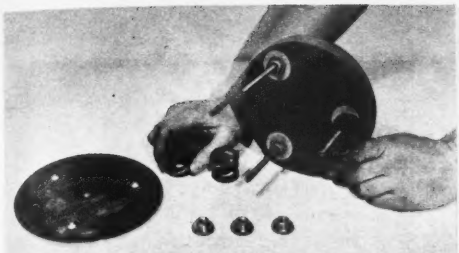
Reading a newspaper headline at a half-mile is easy.

The three ¼ in. holes in the cell should be countersunk in order to accept the flathead bolts. Use a high speed on the drill press.

Part 3

LAST month, you remember, we aluminized the mirror. The mirror can also be silvered at home. Carefully clean the front surface of the mirror with distilled water and alcohol. Dissolve ¼ oz. of pure silver nitrate in 6 oz. of distilled water. Then add chemically pure ammonia, drop by drop, until the solution clears. In another vessel, pour a teaspoonful of formaldehyde into 2 oz. of water. Add this to the silver solution and immerse the mirror until a good coat is formed. Stand the mirror up on edge until it is dry. This silver coating is not as tough or as durable as the commercially vacuum-deposited aluminum coat is but it will do in an emergency.

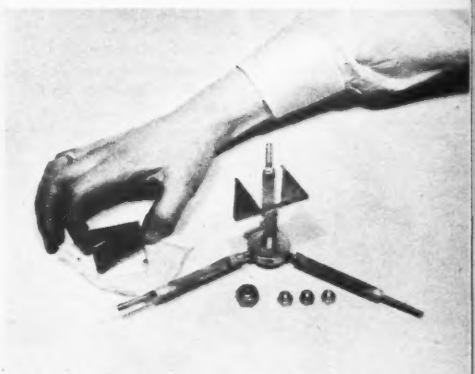
To hold the mirror, prism and eyepiece, the optical components of our telescope in the proper alignment, we shall need a tube. This can be made of cardboard, galvanized sheet metal or aluminum. An aluminum tube suitable



The cell for the mirror. Note how the three ¼x20 bolts are locked in place with three nuts. Holes in aluminum plate should pass bolts freely.

Angle irons at left are bolted to the aluminum plate and to the sides of the tube. By twisting thumb nuts mirror can be leveled in relation to tube.

At left is a standard 1 in. eyepiece. This will give you 54 power. Slotted tube in center accepts eyepiece for focusing. At right is a combination eyepiece and diagonal holder which can be used instead of a more expensive right-angle prism.

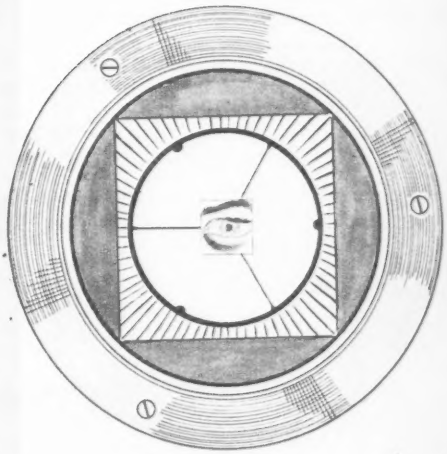


The prism can be adjusted longitudinally by backing off large nut and rotating the holder.

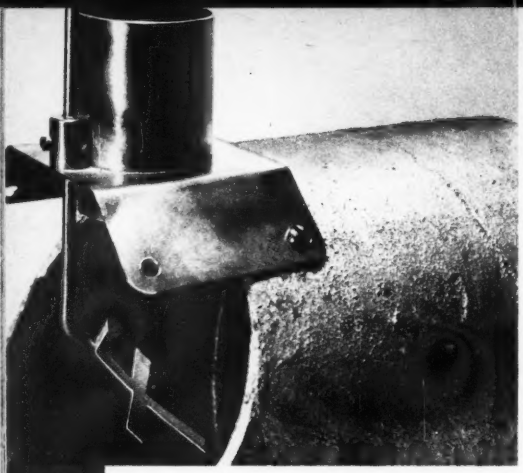
for our instrument can be obtained from the Reynolds Aluminum Company at Louisville, Kentucky. It is known as irrigation tubing and has an outside diameter of 7 in. The wall thickness is $\frac{3}{32}$ in., ideal for our purpose.

But first, let us make the cell. This will hold the mirror in the bottom of the tube. Cut or turn a 1 in. piece of hardwood to a 6 in. diameter. Through this drill three ¼ in. holes spaced 120° apart, about 1 in. from the edge. Next, get a piece of dural, brass, or aluminum plate about ¼ in. thick and turn this to a diameter of 6½ in. Three $\frac{5}{16}$ in. holes are similarly drilled in this disk to correspond to the holes in the wooden disk. Next, procure three ¼ in. flathead bolts. Pass them through the wooden disk and lock them on the other side by means of three nuts and washers. Three automobile valve springs cut down to about 2 in. are placed over the bolts and the metal disk installed over the protruding bolts.

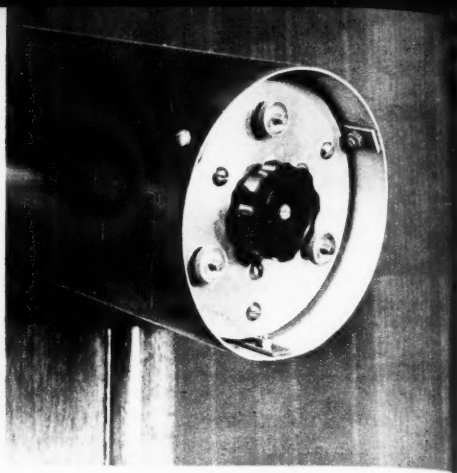
The mirror is fastened to the wooden disk by means of three brass clips screwed to the sides of the disk at 120° intervals. These brass clips should have a ¼ in. flange at the end.



As you look through the eyepiece adapter, the prism should be in the exact center of the mirror. Adjust prism and mirror to get above result.

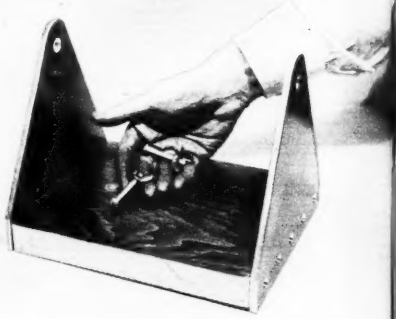


A cutaway view showing how eyepiece adapter illustrated on page 121 is mounted on the tube.



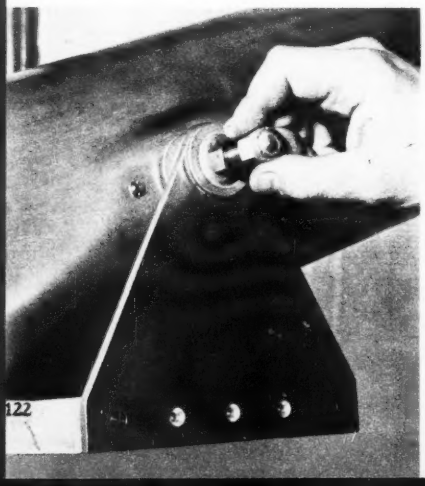
The mirror cell mounted in the back of the tube. Knob in center helps install and remove the cell.

Drilling holes for trunnions. Make small pilot hole first; use low speed for half-inch holes.

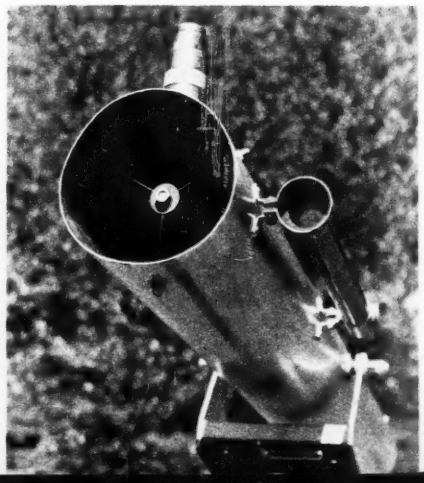


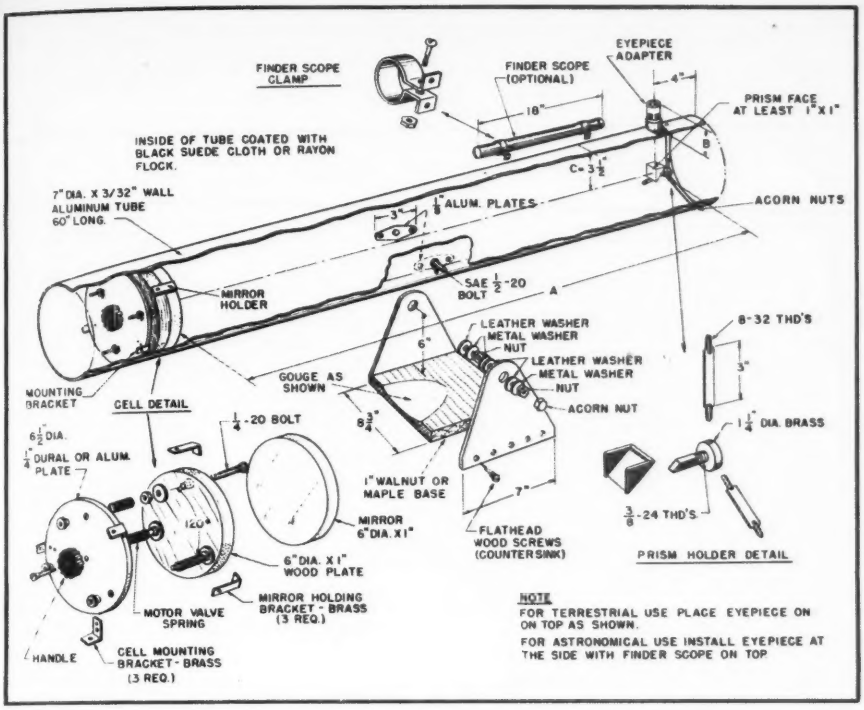
Plates for yoke are screwed to a wooden block. Use two ¼x20 bolts to secure yoke to camera tripod.

Tube mounted on yoke. Adjust inner nut to get proper tension, then lock it with acorn nut.



The business end. The inside of the tube should be blackened with flat paint, flock or suede cloth.





Pad the flanges with felt so that they will not scratch the mirror. Three thumb nuts complete the cell assembly.

When the cell is fastened to the bottom of the tube by means of three angle irons, you will be able to tilt the mirror in various directions by tightening or loosening the thumb nuts. The picture on page 122 shows the cell mounted in the end of the tube. The black knob in the middle is merely a handle.

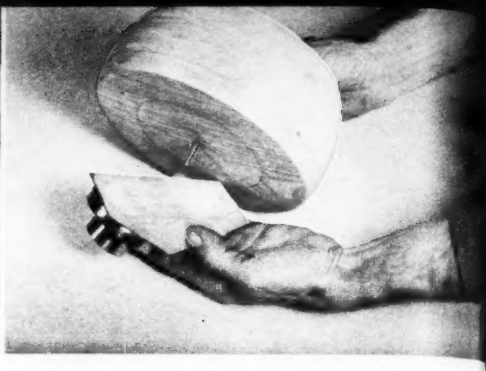
Incidentally it is best to mount the cell in a slotted opening at the bottom of the tube so that it can be moved up and down to compensate for any error in the computing dimensions which are to follow.

The next step is to determine the position of the prism in the tube. And this, in turn, is determined by the focal length of the mirror. We will have to determine this focal length to within ¼ in. Place the mirror in bright sunlight and direct the reflection of the sun to a business card held about 54 in. away from the mirror. Move the card up and down until a sharp image of the sun is obtained (it will be about ½ in. in diameter). Then, have a friend carefully measure this distance with a steel tape. This distance is the true focal length of your mirror. Let us assume that it measures 54 in.

From this deduct B (the height of the eyepiece adapter) plus C (the distance from the center of the tube where the prism will be located to the top of the tube). See the drawing. This should give you about 48 in., plus or minus, depending upon the wall thickness of the tube and the height of the eyepiece adapter. At a point, then, 48 in. from the front surface of the mirror, cut a 1¼ in. diameter hole to accommodate the eyepiece adapter. Such an adapter is shown on page 121. This type of adapter can be purchased from an optical supply house.

You will notice that it has a built-in carrier to accept a small mirror or diagonal in lieu of a prism. A prism is to be preferred as it is more efficient. If you use a prism you will have to make or buy a "spider" in order to hold the prism in the center of the tube. Such a spider assembly is also illustrated on page 121, for construction details see drawing on page 123. The end of the threaded brass rod should be cut off exactly at 45° and soldered to the back of the prism holder. The holder, made of thin brass, should be formed to fit snugly the particular [*Continued on page* 142]

Each disk is mounted on the faceplate of your lathe and turned to the proper diameter; then tongues and grooves are cut and disks glued up.



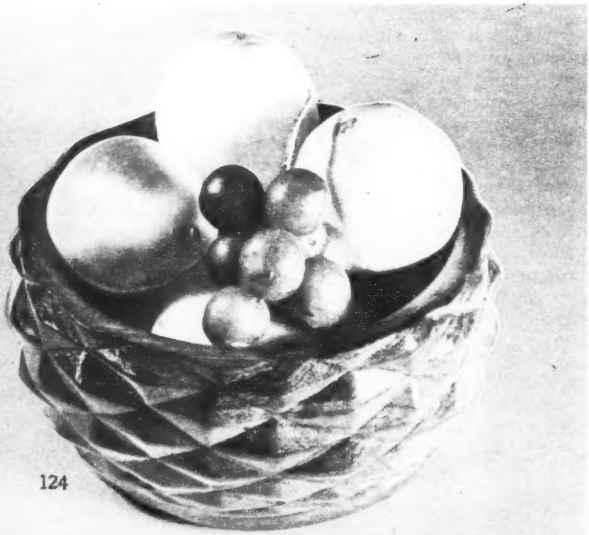
Screw the bowl to the angle block, as shown in the detail on the opposite page, and mount the angle block on the faceplate of your lathe.

Lathe-Turned FRUIT BOWL

By Benjamin Nielsen

THE pleasing diamond design on the outside of this lovely walnut bowl is a highly interesting and unusual project for the lathe enthusiast.

For the bowl illustrated, stock was built up of five layers of 1-in. material, tongue-and-grooved together. The bowl could, of course, be built up of thicker material, or made from one solid block. Each disk was mounted on the faceplate of the lathe, trued, and tongue-and-grooved as in the drawing on the facing page; then the five disks were glued together, as in the first photo. After the glue dried, the block was mounted on the faceplate of the lathe and the outside surface turned to the shape indicated by the template. Next, the turning was removed and remounted by means of an angle block, which was screwed to the faceplate and the turning. Twelve equidistant marks were made on the surface of the turning; then the cuts were made with a turning chisel. After the last cut was completed, the bowl was removed from the lathe and small corrections were made by hand, using a sharp chisel.



Sanding the surfaces was accomplished with the aid of a V-shaped sanding stick. For the final sanding, a brush-backed rotary sander was found to be ideal.

A coat of thinned shellac was then applied to the diamond-cut surface, after which the block was remounted in the lathe and the inside was turned out, sanded, and given a coat of thinned shellac. This inside surface was readily finished while still in the lathe by using the popular spun-shel-

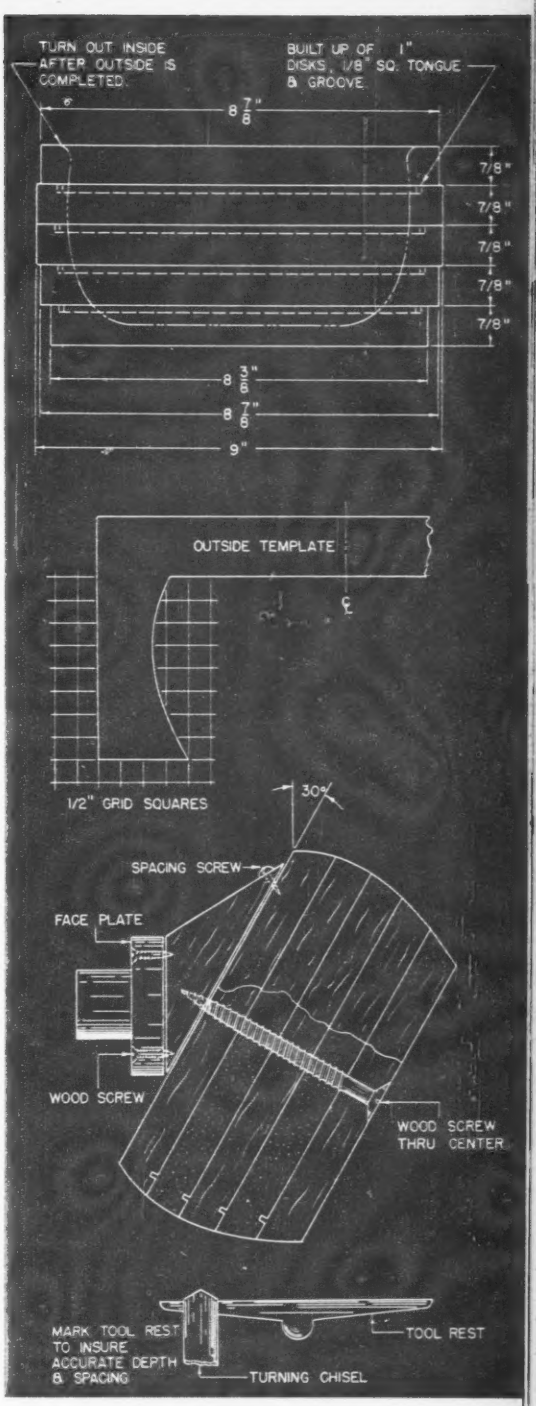
Here is shown the correct way of holding the turning tool, supporting it on the tool rest and carefully scraping as the lathe revolves.

lac method. The shellac was applied by holding an alcohol-moistened pad against the surface as the bowl revolved in the lathe.

If a high-gloss finish is desired, the outside surface may be given a varnish coat after the shellac has been rubbed down. A piece of felt or blotting paper should be glued to the bottom of the bowl to protect highly polished furniture.

For those who have just acquired a lathe, it should be explained that the turning chisel used in cutting the diamond pattern, while somewhat similar to a woodworker's chisel, is longer and heavier. It has a long handle so its cutting action may be completely controlled. And, while we have just used the word *cutting* in describing the action of the turning tool, that is a general word and doesn't accurately define what takes place. A better word would be *scraping,* because, in doing faceplate turning, the tool doesn't cut, but rather scrapes the wood away.

Either one of two turning tools may be used when making the diamond pattern—a *sizing or parting tool,* or a *diamond-point wood-turner's chisel.* The parting tool is one of the basic accessories; so you are probably more or less familiar with it. The diamond-point chisel may not, however, be so well understood. It is a flat tool that may be used for both faceplate and between-center turning. The cutting edge is shaped to a beveled, diamond point. On faceplate work, it is used for roughing out. On between-center work, it is used for finishing. Since the job described here requires an askew cut, the result is semifinished; hence the necessity, mentioned above, of finishing with a hand chisel. •



For a small boat, this top-opening icebox is the best type because your food cannot fall out in rough weather.

BY GEORGE B. TAYLOR

Icebox For Your Cruiser

ON a small boat, 32 ft. long or less, an icebox is most satisfactory if made to fit into the galley counter top. The top-opening icebox has a very important nautical advantage in that its contents can't spill all over the galley floor when you run into dusty weather and have not had time to batten things down. Another advantage is its more efficient refrigeration—we all know hot air rises and cold air stays down; so when you open the hatch of a top-opening box you lose less cold air than with one of the front-opening type.

Fig. 4 shows the drainage system that makes this icebox unique. The bottom of the typical box is too low in the boat to allow draining overboard, and draining directly into the bilge is decidedly bad practice; so emptying the box becomes a troublesome problem. In this box, though, the drain is directly connected to a hand pump at the galley sink. When you want to empty the box, you pump the water into the sink, where it will run out the drain. This ice water can also be used for drinking, it being taken for granted that the box is kept in a clean and sanitary condition and the ice wiped off before it is stowed. Fresh water is a problem on a small boat, the tank usually being of small capacity; so any additional source such as this is more than welcome.

The hatch, you will note, is made in two parts, connected with a continuous hinge down the center and fastened to the counter by means of another continuous hinge. This is done because the hatch takes up less counter room when folded back, yet gives a full opening when needed for icing. Also, when only a small item is to be taken from the box just the front half of the hatch need be opened, thus conserving cold air and ice.

The box is made from 20-ga. galv. iron of the copper-bearing type sold under the trade names of *Armco* and *Toncan*. The cutting-and-bending diagram, Fig. 1, shows clearly how to cut out the five pieces with the utmost economy. All bends are 90° angles. The corrugated bottom tray and the food containers, Fig. 2, are made from 24-ga. material. The containers keep the food separated from the ice water, which is to be used for drinking.

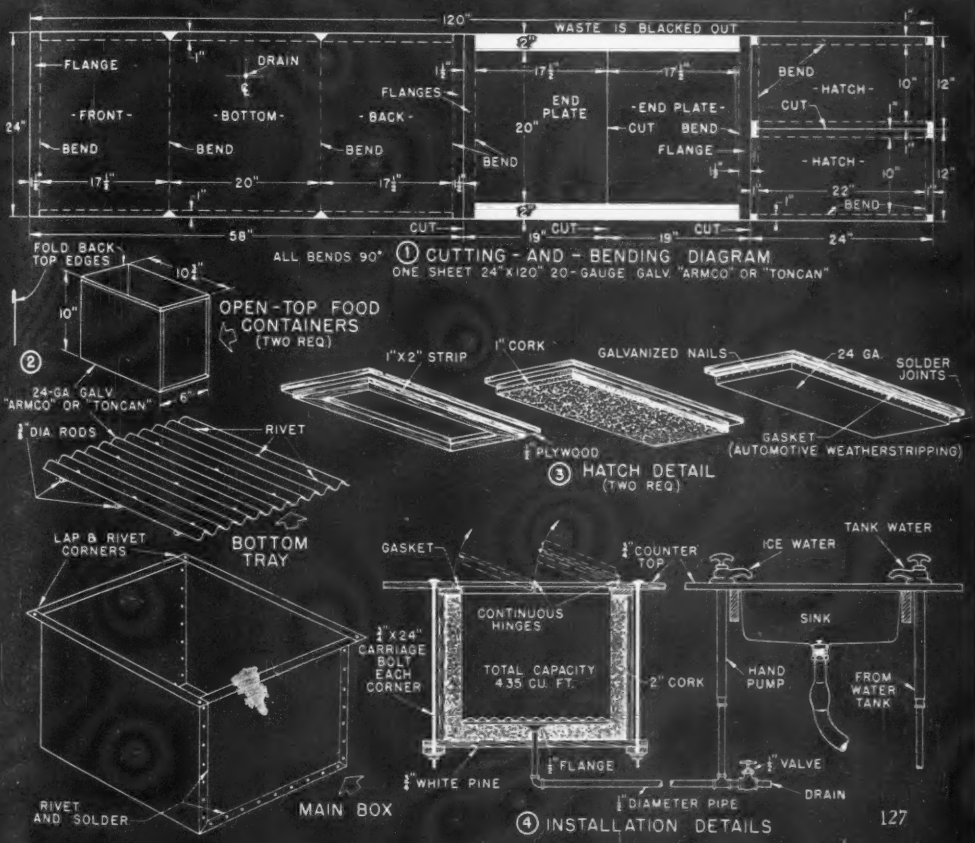
The metal can be taken to a tinshop after it is cut out—they will do the bending for you for a small charge—or you can rig an improvised brake from angle

irons or two-by-fours and use C-clamps to hold them together. Tinned-iron rivets are used at the joints. Attach a galv. ½-in. floor flange to the bottom with galv. machine screws and hex nuts. The rivets, screws, and seams should all be soldered and the box tested for leaks by filling with water and allowing to stand for several hours. The piping from the box to the sink is clearly shown in Fig. 4.

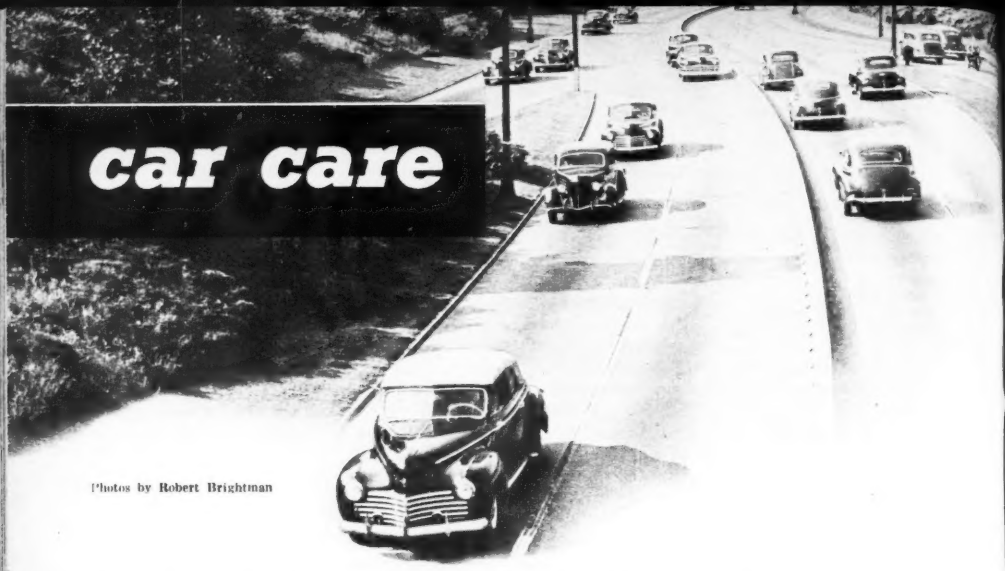
Fig. 3 depicts the three steps in constructing each half of the two-piece hatch. Both halves are identical, just being reversed. First, a piece of ½-in. waterproof plywood is cut out for a top. On this is mounted a 1x2-in. nailing strip, mitering the corners and fastening with brass screws. Cork, 1 in. thick, is rabbeted to take the nailing strip and lightly tacked in place. Cut, bend and solder the corners of the galv. covering; then slip it over the cork and fasten with galv. finishing nails driven into the nailing strip. A $\frac{1}{32}$-in. nail set is used to punch pilot holes in the metal for the nails. The gasket around the hatch is a $\frac{3}{16}$-in. molded sponge-rubber strip with a self-sealing adhesive on one edge. It is sold by automotive accessory stores in 10-ft. lengths.

Fashion the outer wood box from ¾-in. white pine. It is hung from the counter top by one ⅜x24-in. carriage bolt at each corner. Finish it inside and out with three coats of good paint. When the paint is perfectly dry, line the box with 2-in. cork for insulation and install the metal box. *Note well*—when building the box into the boat be sure to allow at least 2 in. of air space on all sides and the bottom. This is a precaution against dry rot.

A word about the galley. You can afford to spend many hours in planning its arrangement because a well-laid-out galley will mean more efficiency on the part of the cook and, in the end, more pleasure—less frayed tempers—for the crew members. •



car care



Photos by Robert Brightman

Firing Order. Have you ever wished for a simple yet sure way to find the firing order of an engine? Remove the spark plugs and put No. 1 cylinder (next to the radiator) at the beginning of its compression stroke. Then put the corks in the plug holes. Slowly crank the engine and watch the corks. They will pop out in the order in which the engine is designed to fire.

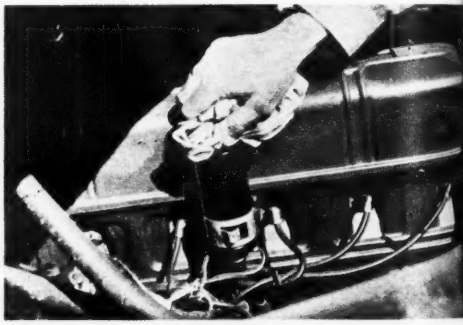
Motor Backfiring? One MI reader found paint on threads of two of the spark plug holes. This retarded heat transfer to the head, causing plugs to overheat and prematurely ignite the mixture.

Tire Pressure. You will always get an erroneous tire pressure reading if you take it after a drive. Tires are hot and the gauge will usually read about 3 or 4 lbs. more than when the tires are cool.

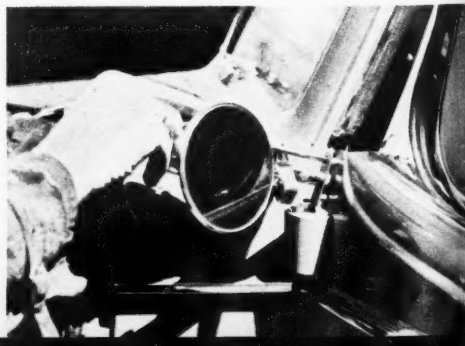
Roughness when running slowly in high gear may seem like backlash from worn universals but probably is due to a bucking motor.

Mysterious rattles can sometime be traced to loose sheet metal work between the grille and radiator. Use lock washers before tightening.

Surprising how much easier it is to start the car on a damp day when the coil, distributor and spark plugs are kept clean. Dirt holds moisture.



Below: The newest type of rear vision mirror attaches to the front edge of the door without drilling. It is theft-proof when door is closed.



BEHIND THE WHEEL

With Fred Russell

If you want a personal reply, please include a self-addressed, stamped envelope.

My 1947 Nash needs choking to keep running. How come? Gordon R. Frederick, San Diego, Calif.

When an engine must be choked to keep running the mixture is too lean. Look for a low carburetor float, a weak fuel pump or an air leak around the intake manifold.

Can I install hydraulic brakes on my 1936 Ford? Robert Simmons, Olney, Oregon.

You cannot install hydraulic brakes on your 1936 Ford except at great expense.

My 1935 Ford is supposed to hold 22 qts. of water. However, when I empty and refill it it only takes 18 qts. Why? Peter Sondow, Long Island City, N. Y.

Until the motor thermostat is opened up the cooling system usually won't hold the full supply of water. Another possibility is that the block is badly clogged with scale.

What causes the clutch on my 1935 Oldsmobile to chatter and grab when it is engaged? William Dettmer, Port Chester, N. Y.

Clutch chatter can be due to a glazed condition of the facing or to grease or oil on the facing. Oil can work past a worn rear main bearing or a bad oil retainer. Chatter can also be due to misalignment between engine, clutch and transmission, or to loose engine mountings.

Where can I get an owner's manual for a 1939 Oldsmobile? William E. Evans, Chicago, Ill.

Your best bet would be to buy a copy of Motor's Auto Repair Manual, published by Motor, 572 Madison Avenue, New York City. This book covers all American cars for the past ten years.

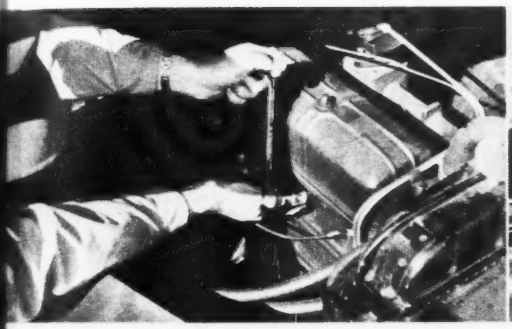
Is it possible to install Ford sleeves and pistons in my 1937 Plymouth? Louis De Laurentis, Layton, Utah.

Give up the idea of using Ford sleeves and pistons in a Plymouth engine.

Front Wheel Bearings should be checked after the summer trip. Heat may have thinned out the lube to a point where it passes the retainers and gets on the brake shoes.

Safety Sense. One-arm drivers are nearly always headed down the aisle of a church. Some will be led . . . others will be carried. Speeders can expect to pass everything including a few nights in jail.

Tightening the spark plugs too much will affect their gap setting. Use a torque wrench to be on the safe side. Replace old gaskets with new ones.

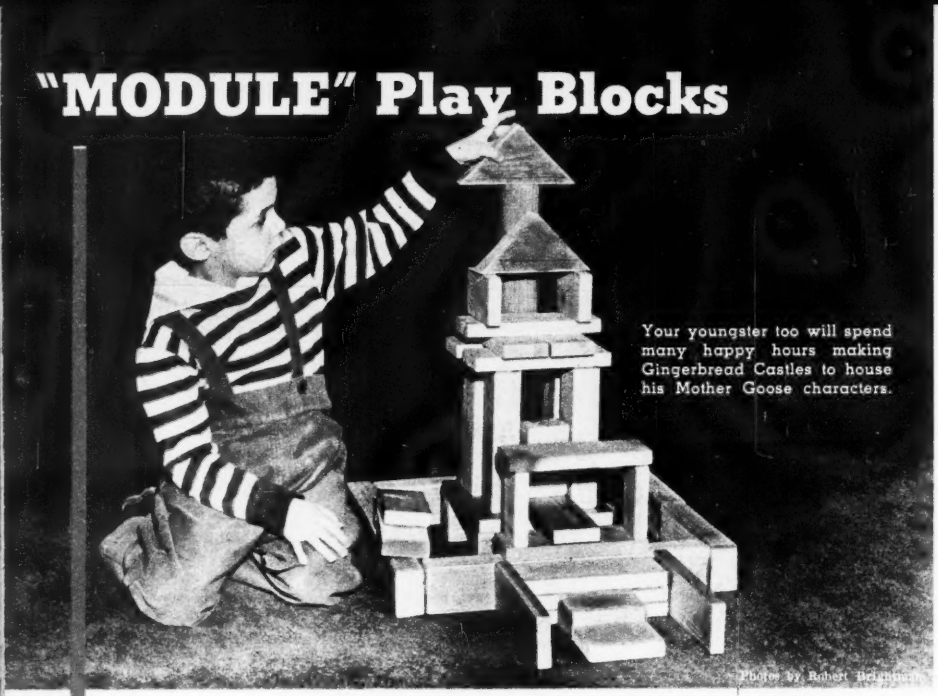


Water pump irregularity can be detected by squeezing the upper hose while an assistant guns the motor. Hose should swell immediately.

Below: Watch the vent at the bottom of the clutch housing. Water leaking out at this point indicates a bad internal head gasket leak.

Below: One of our readers reported an annoying miss in the motor which was caused by physical contact between coil wire and a spark plug wire.

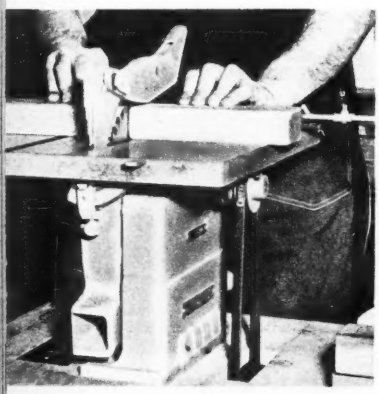
"MODULE" Play Blocks



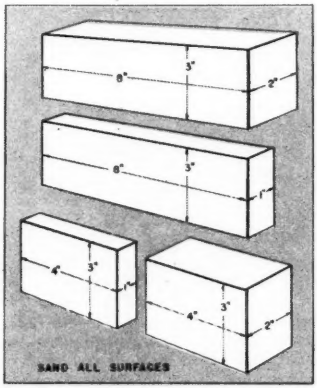
Your youngster too will spend many happy hours making Gingerbread Castles to house his Mother Goose characters.

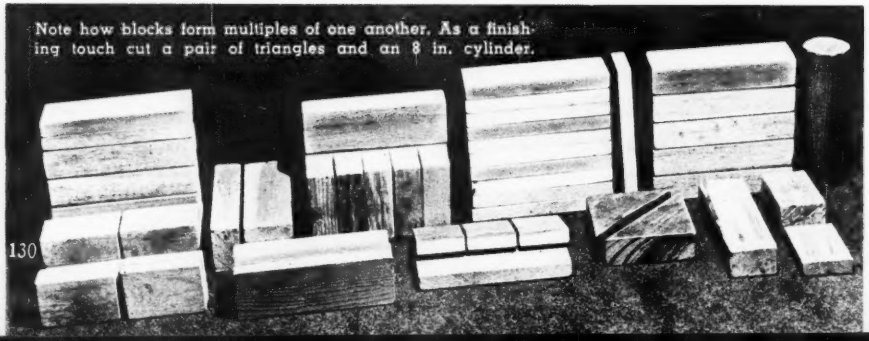
Photos by Robert Brightman

These are not ordinary blocks; the thickness, width and length of each one is a multiple of the next adjoining size.



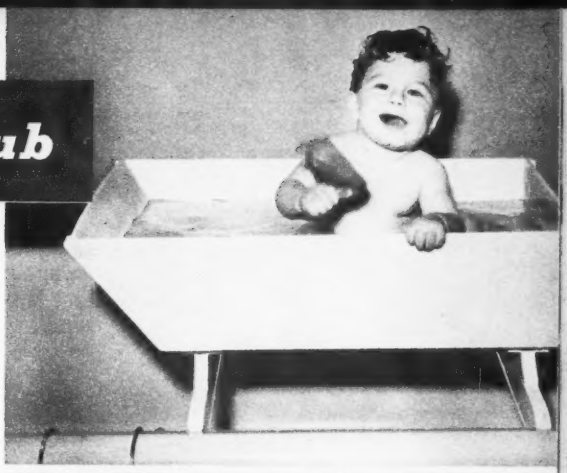
Making the blocks is chiefly a bench saw operation. Cut one length of 14 ft. 2x3 (clear pine or fir) and one piece of 1x3 into 8 in. lengths. Two more pieces of the same dimension are cut into 4 in. pieces. This will give you a total of 60 blocks as a starter.





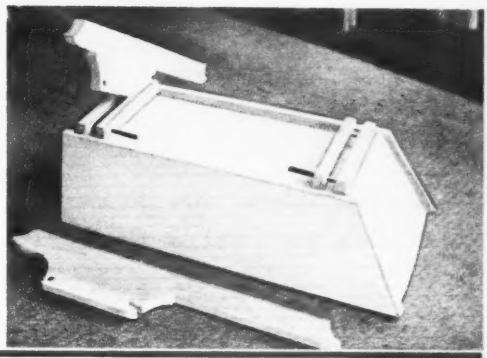
Note how blocks form multiples of one another. As a finishing touch cut a pair of triangles and an 8 in. cylinder.

baby's bathtub

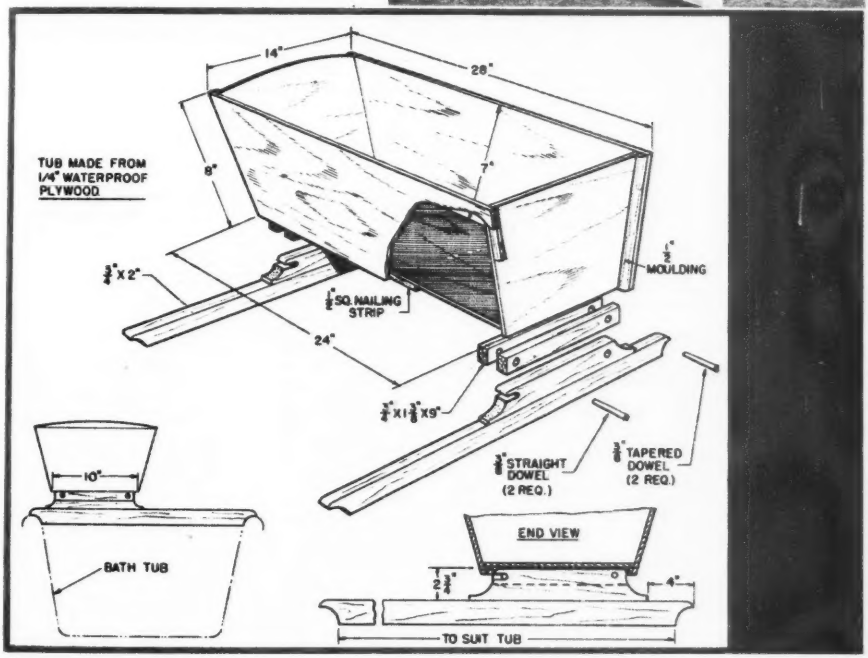


NECESSITY was surely the mother of this invention, for the idea of building such a thing as a baby's bathtub never entered my head until my daughter came home with a baby. Like most grandparents, I guess, we had long since disposed of the tub in which our babies had been bathed. Now it happens that I am a boat builder for fun and had some marine grade Weldwood, ¼ in. thick, left over from building a dinghy.

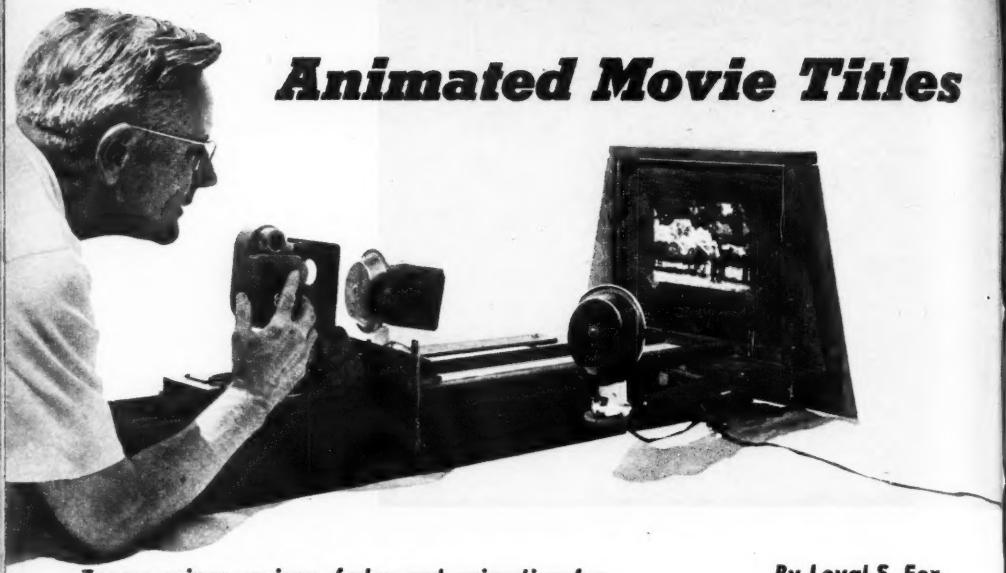
One morning as I was getting out of bed it hit me out of the blue that if I could build a boat to keep water out I could build a tub to keep water in. And while I was about it I decided to improve on the usual baby's bathtub to be found in stores by making my [*Continued on page* 146]



Tub is built of ¼ in. waterproof plywood. Note how supports are inserted in bottom.

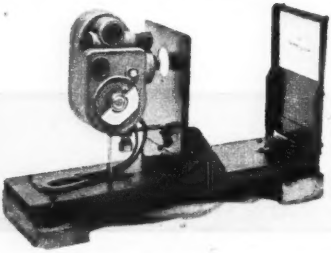


Animated Movie Titles



Zooms, wipes, swings, fades and animation for 8 and 16mm film, color or black and white

By Loyal S. Fox



Above: The basic titler unit. Below: Making a wipe. This is done by mounting titles on separate panels and slowly inserting or withdrawing a panel while camera is running. Zooms are made by starting camera and slowly pushing it forward into focus.

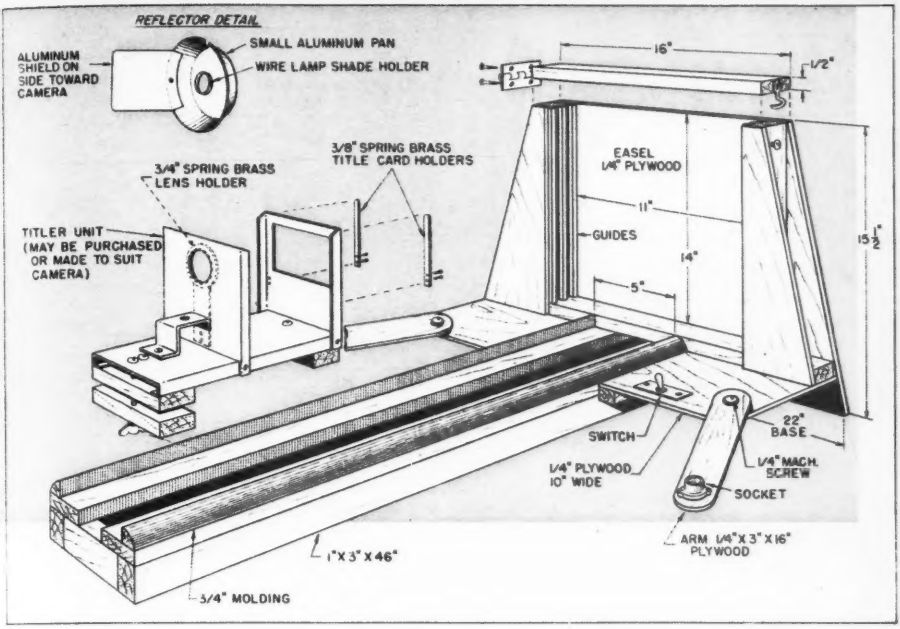
MOST commercial movie titlers use a small title card, satisfactory for simple titles but too tiny for special effects. However, if you already own one it can be used as the basic unit for this titler which will take cards up to 11x14 in.

The heart of the titler is the portrait or copying lens, which shortens the focal length of the camera lens. Such lenses are obtainable from camera stores.

If you have an 8mm camera with a ½ in. fixed focus lens, at 3 ft. it will cover a 9x12 in. area and at 2 ft. it will cover a 6x8 in. space. A 16mm camera with a fixed focus 20mm lens at 33 in. will cover an 11x15 field. The same model equipped with a focusing lens set at 2 ft. will cover a 6x9 in. area. You will find a complete list of field sizes at different working distances packed with the instructions which come with the copying lens.

The titler itself as shown in the drawing consists of a bed on which the titler mount slides freely. At one end is an easel designed to hold two 11x14 in. panels of ¼ in. plywood. Two swinging bracket arms are fitted with sockets for the photoflood lamps which are wired to a common switch.

The piece across the top of the easel is hinged at one end and latched with a hook



and eye at the other. Make sure the center line of the lenses line up with the center line of the 11x14 in. panel.

Many special effect titles can be made with this titler. The wipe-on or wipe-off is made by mounting a title on each panel and slowly inserting or withdrawing the front panel while the camera is running.

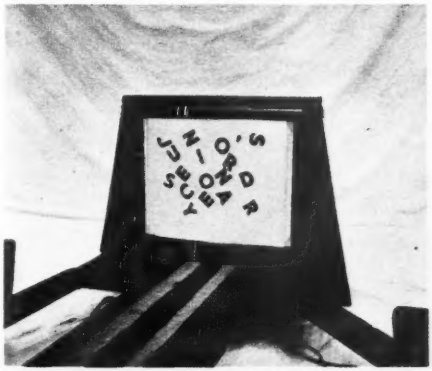
Swing titles are very effective. Mount the title on a card and hinge one edge of card to the easel frame with adhesive tape. Swings may be made from either side, top or bottom of the rear, upright easel.

This titler may be used in a vertical position by clamping the mount to the bed and locking the panel with the cross bar.

With two No. 1 photofloods and Super XX film use an f-11 opening. Use f-8 for regular panchromatic films. With Kodachrome set the diaphragm at f-2.8 for dark colors and f-3.5 for light tones.

Run the camera long enough so that you can read the title twice. Avoid long titles. Ten words should be the limit. •

Animation. This is made by starting with a jumbled title, running the camera for a frame or two, stopping, and then moving the letters in place.



Swings. Mount the title on a card and hinge it at one end to the frame with adhesive tape. Run the camera and slowly swing top title out of the way.

Monthly Photo Contest

Please put your name, address and picture-taking data on back of each print. Wrap with cardboard stiffeners and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes will be awarded in case of tie. Please address all entries to: Monthly Photo Contest Editor, MECHANIX ILUSTRATED, 67 W. 44th St., New York 18, N. Y.

First Prize ($10) .....Roman Candles
A 30-second time exposure with a Recomar camera by Arthur L. Schoeni, Arlington, Va.

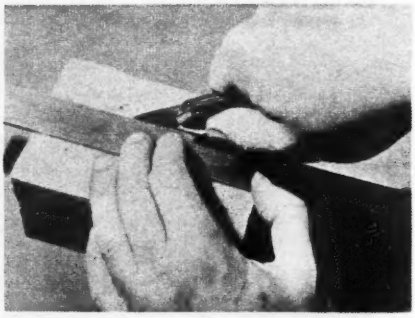
$5.00 Award .....Caught
Taken by Fred Frater of Coatesville, Pa. Rolleiflex plus flash, f-16 and 1/100th.

$5.00 Award ....."Watch His Left"
John R. King of Cumberland, Md., puts a couple of the small fry in range of his Dolly camera.

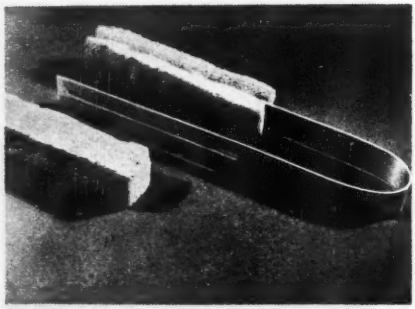
$5.00 Award .....Lunch
A good study of a young chipping sparrow by O. S. Hanson of Middleton, R. I., Avus camera.

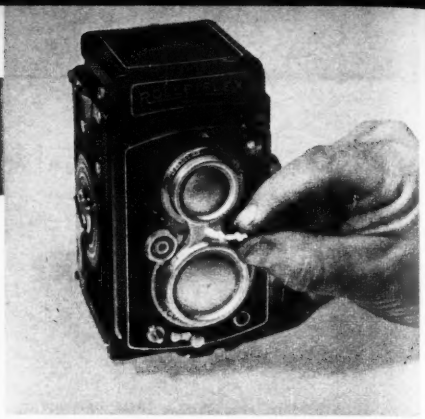
photo shorts

Sponge Tongs. This handy film drying accessory can be made out of a wornout cellulose sponge. Cut it when dry, photo below, then wet

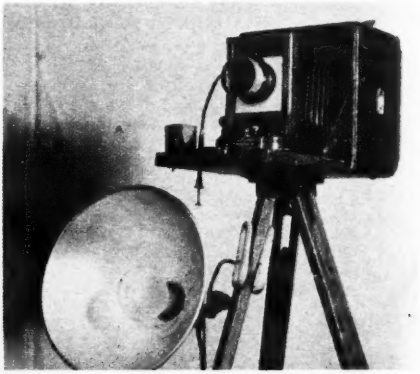


it and pass each section through slits cut lengthwise in each side of a handle made of stainless steel or aluminum. Finished tongs, below.

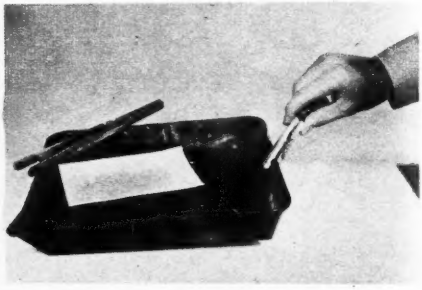




Lens Cap Puller. Balky lens caps will pull off easily if you pass a knotted cord through a small hole drilled in the center of the cap. One pull and the cap comes off.



Simplified Front Lighting. If you want to duplicate flat lighting, similar to flash, it can be done with a photoflood lamp clamped to a leg of the camera tripod.



Tray Rocker. A spring clothespin attached to the side of a tray will enable you to agitate the prints in the developer without danger of contaminating your fingers.

QUESTION BOX

By Robert Brightman

If you want a personal reply, please include a self-addressed, stamped envelope.

What causes my Universal Developer to turn brown even though kept in an amber bottle? Frank Schnittker, St. Louis, Mo.

This developer will turn brown unless it is kept in a tightly stoppered bottle full to the very brim. Under this condition it should last about two to three months.

What do these numbers on my camera mean: 1.2; 1.5; 2; 3; 4; 6; 10; 00? Julius Savickas, Jr., Minocqua, Wisc.

These numbers refer to meters. The 00 on the end means "infinity." One meter is equal to 40 in.

Do you offer plans for the construction of a printing box and a Delineascope? Rev. J. Melvin Elving, Columbus, Neb.

Plans for the MI Contact Printer are available from our home office at Greenwich, Conn. In the near future we expect to print a story describing the construction of a Delineascope.

Can I take indoor pictures with my Fed-Flash camera? How many photofloods do I need? B. L. Browns, Mystic, Iowa.

Two No. 2 photofloods at about 5 ft. plus a high-speed film will enable you to take indoor pictures.

Could you please tell me how to make copy negatives? Jerry Jarnick, Almond, Wisc.

Copy negatives can be made by using Kodak Direct Positive film. This film requires special reversal processing. However, it does eliminate an intermediate step, the making of a positive. Use the printing frame with the bulb masked down so as to emit very little light. Place the cut film, emulsion side down, in contact with the negative you want to copy, emulsion side up. Try an exposure of about ½ second. After developing, if this is too dense, reduce the exposure and, if too light, increase the exposure.

Can a Kodak No. 4 roll film camera be converted to take plates or cut film? W. Greenfield, Christians, Pa.

At one time, about 25 years ago, the Eastman Kodak Co., did make plate and cut film adapters for some of their roll film cameras. Evidently the conversion wasn't very successful as these units are no longer available. You can, of course, make individual exposures with your No. 4 Kodak by using single sheets of cut film. You will have to load and unload your camera in the darkroom.

Can the black and white film taken with a Micro 16 camera be developed the same as 16mm movie film? Ramon Cantarrana, Provincia La Havana, Cuba.

The film used in this camera must be developed as a negative and not into a positive as is done with regular 16mm movie film.

Please let me know how to make relief (embossed) pictures showing three dimensions, but not bas-relief. Tjan Hong-Kie, Bandoeng, Java.

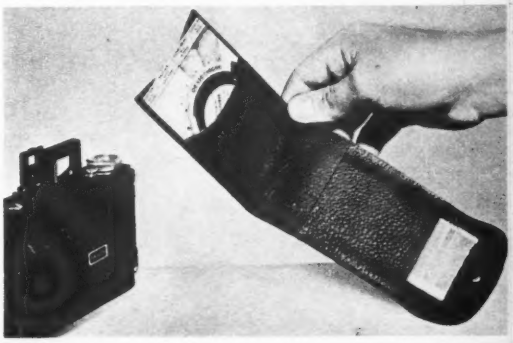
A method of printing pictures in apparent three dimensions, but not a bas-relief process, was described in the September 1946 issue of MI.

Would appreciate information about my Welta camera which has an f-2.9 lens and uses 35mm film. John B. Emanuele, New York, N. Y.

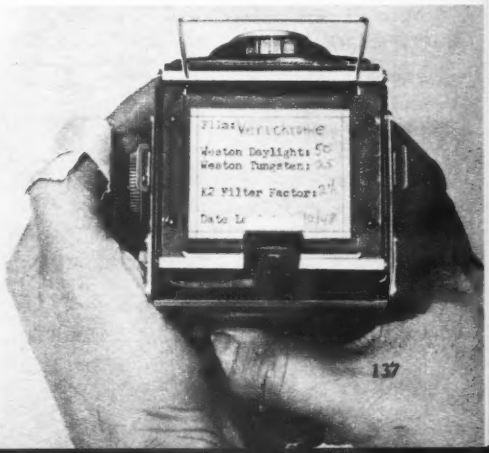
The camera you describe takes a 1x1½ in. picture. Film for this camera usually comes in 20 and 36 exposure rolls. Color film is also available for it. It is usually equipped with a Compur shutter having speeds ranging from one second to 1/300th or 1/500th of a second. Offhand, such a camera, in good condition, is worth about $35.00.

Emergency Trays. Boxes used to pack gross lots of enlarging or contact paper make serviceable developing trays after they have been waterproofed with paint.

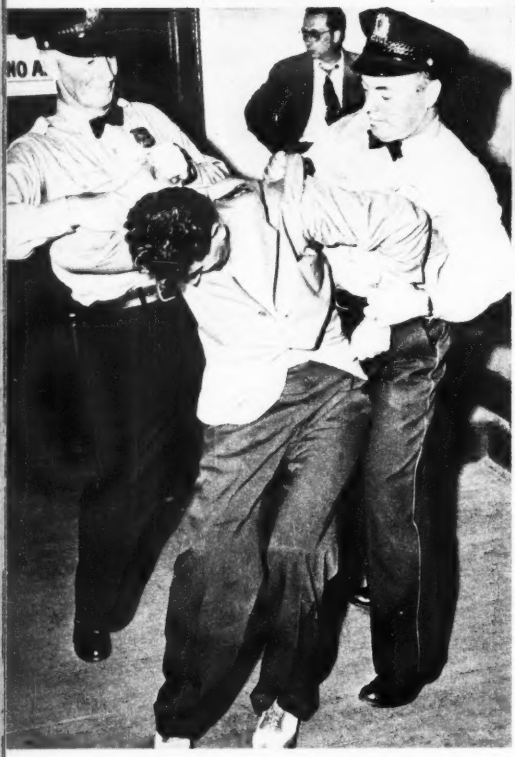
Data Holder. A suitable container for exposure guides and lens tissue can be made out of a check book holder. Film guide fits in one end and lens tissue in the other.



What Film? Instead of relying on memory as to what was loaded in your camera many weeks ago, write the dope on a piece of paper and paste in on the camera.



A Hatful of Sunlight

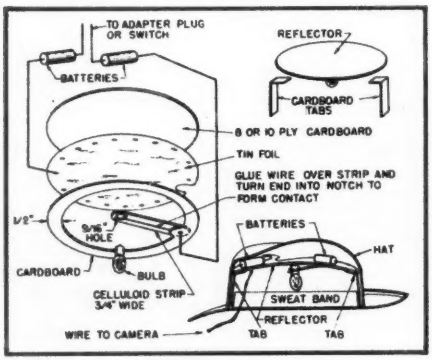


DRAMA, stark and terrifying, suddenly broke before my eyes one night. I was on the way to the library, the rain was coming down in a chilly drizzle but still I had faithfully taken along my trusty camera. Suddenly the sharp crack of a pistol pierced the night. A hold-up man, in trying to make his getaway, had been winged by an alert patrolman.

For months I had trained myself for just such an emergency and already the case on my camera was down and the shutter cocked. I had the man's bloody face, dimly lit by the street lamp, squarely in the finder. Did I trip the shutter? No! Who would think of lugging flash equipment on a short trip to the library? As a result of this incident, the simple solution illustrated in the drawing and photo was evolved. With it, you can create your own sunshine, night and day. —*Richard R. Kent*

Spot news pictures, like the above shot, can be yours if you have taken the foresight to wire your hat for flash. You may get famous overnight!

While the set-up shown below may give you a light-headed approach to your work, it will at least provide you with an ever-ready flash unit.



SpeedWay

No. 117 PORTABLE BENCH *Electric* GRINDER $14.95

Light weight, complete with built-in 1/15 H.P. motor, one "fine" and one "coarse" grinding wheels (4½"x⅜"x⅜") 6 ft. rubber cord and even rubber feet, the capable little grinder goes anywhere, plugs into any 110-115 V. AC outlet and will do a hundred grinding, sharpening and touch up jobs easily and quickly. Quality built-completely housed in cast aluminum that has formed in wheel guards and tool rests. Specially wound, powerful long life air cooled motor. Oil impregnated bronze bearings. Built in switch.

Available now. Your local SpeedWay dealer has this attractive light duty grinder in stock. Ask for a demonstration.

"Blue Line" Tools

SpeedWay Blue Line Tools are especially designed and priced for the home workshop, the farm, garage and repair man, for every job where a handy light weight, "light duty" tool is called for.

Each is a quality tool correct in speed with its specially wound high torque SpeedWay tool motor. Each will do its work well and give long satisfactory service for it embodies an excellence developed thru SpeedWay's 35 years of leadership in the design and manufacture of portable electric tools and motors . . . each is fully guaranteed for 1 year.

Blue Line tools are sold in most leading hardware, mill supply and tool stores, automotive and appliance outlets.

Write for Circulars, or ask your local dealer.

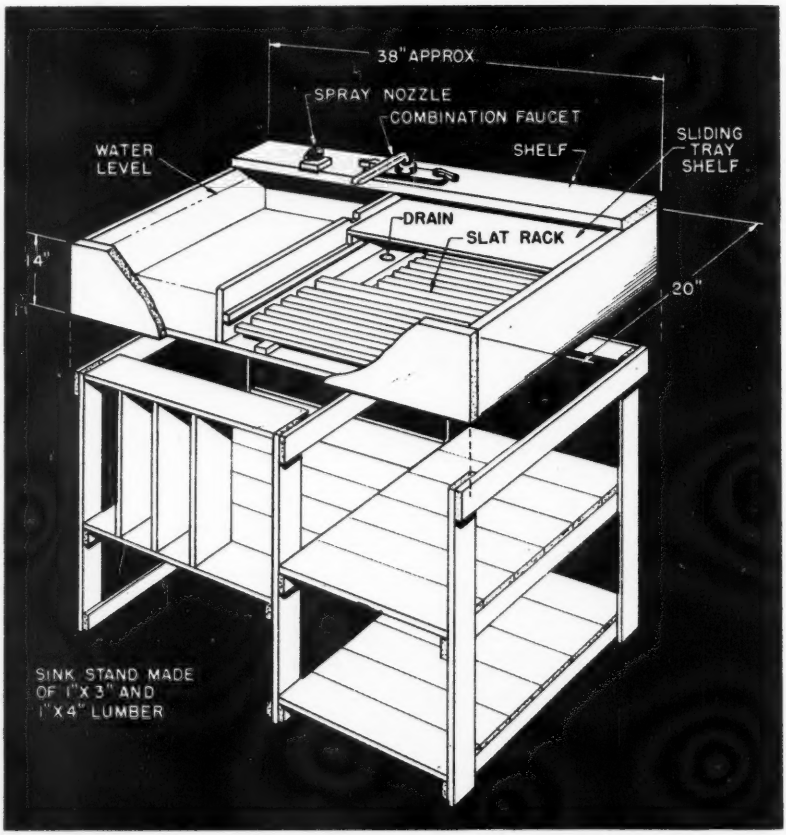
SPEEDWAY MANUFACTURING CO.
1866 S. 52nd AVENUE • CICERO, ILL.

DARKROOM SINK

A nice large darkroom is the dream of most amateur photographers. But, usually they settle for a corner of the kitchen or the bathroom. My sumptuous darkroom measures exactly 40x70 in.—a closet. However, the balcony-style darkroom sink described on this page actually more than doubles the apparent size of my "darkroom."

Water comes through the floor from the cellar and the drain goes down to connect with the sewer. A mixing faucet with spray attachment, takes care of both supply and wash water.

A water-tight divider separates the washing compartment from the rest of the sink and a [*Continued on page* 146]



Introducing KODAK TOURIST CAMERA f/4.5 with NEW built-in picture-taking aids

Here's the very latest thing in folding cameras—newly designed, smartly styled, and equipped to help you get a better picture on every shot.

Check the exclusive picture-taking aids built right into the camera and see why it's the finest folding camera at the price. Camera, $61.50 plus tax; Field Case, $10; Kodak Flasholder, $9.50 plus tax . . . At your Kodak dealer's.
Eastman Kodak Company
Rochester 4, N. Y.

(Prices subject to change without notice)

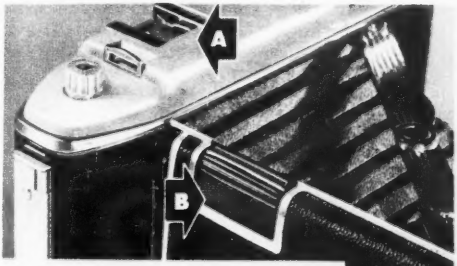
"Kodak" is a trade-mark

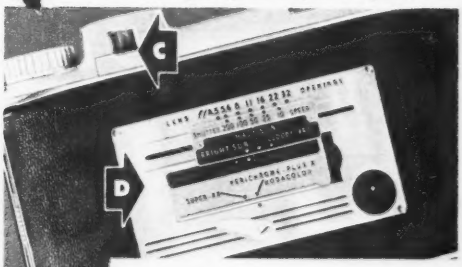
A—Bracket takes accessory range finder

B—Bed shutter release gives steady control

C—Built-in view finder permits rapid framing

D—Sliding computer simplifies exposures



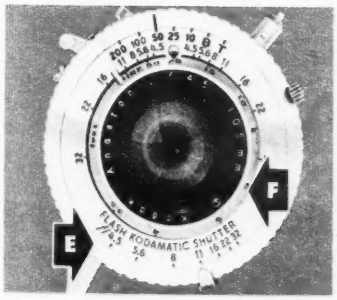


E—Synchronized Flash Kodamatic Shutter—1/200

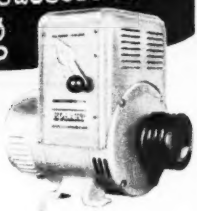
F—Depth-of-field scale etched on lens mount

G—Accepts Kodak Combination Lens Attachments, Series VI

H—Uses Kodak 620 Films, gives 2¼ x 3¼ black-and-white snaps, 2⅞ x 4⅜ Kodacolor Prints



Choose one of these "PROFIT MAKERS" for success in Arc Welding



1 **Your own electric power plus arc welding!**
AC-AC Generator Only for building your own portable. AC welder—AC power plant.

2 **AC-AC Gas Drive**—200 amp arc welder and stand-by power unit.

3 **Industrial AC**—arc welder for heavy duty welding.

4 **AC Welder**—designed for shops with single phase power supply.

5 **Electric Drive**—for production and maintenance welding.

6 **Generator Only**—for "building your own" portable gas engine welder.

7 **Welder & Power**—A welding generator with 1 to 3 KW aux. D. C. power.

8 **Gasoline Engine Drive**—arc welder for heavy duty welding in field.

9 **Weldmobile** — the complete portable welding shop, for any welding job.

10 **Gas Drive Welder**—with DC Power to handle welding and furnish Electric Power.

11 **Gas Drive Arc Welder**—with Auxiliary DC Power Generator for welding and power.

12 **Hobart Trade School**—most modern and efficient available. Non-profit. Covers all welding.

13 free!

"Vest Pocket Guide"—contains useful data for welders. Charts, symbols, etc.

HOBART BROTHERS COMPANY
BOX SM-98 Troy, Ohio

HOBART...

HOBART BROS. CO., BOX SM-98 TROY, OHIO
"One of the World's largest builders of Arc Welders"

Without obligation send me complete information on the items I've checked by number.

1 2 3 4 5 6 7 8 9 10 11 12 13

NAME_____

ADDRESS_____

CITY_____ STATE_____

MI's Portable Telescope

[*Continued from page* 123]

prism you will buy. Get one having at least a 1 x 1 in. face.

The prism, of course, should be directly opposite the eyepiece adapter. Provision for adjustment is obtained by threading the end of the rod which holds the prism. By backing off the nut, this rod can be moved up and down until the prism is centrally located.

The tube should be painted or sprayed a dead black in order to kill reflections. This can be achieved by cementing black suede cloth in the tube or by spraying it with black rayon or cotton flock.

The next thing is to suspend the tube in its yoke. Get the point of balance by resting the tube on a round pencil with all the fittings in place. After this has been determined, remove the mirror, prism holder and eyepiece adapter in order to avoid damaging them while the yoke is fitted. Drill two ½ in. holes diametrically opposed at each side of the tube. Through each hole a ½ x 2½ in. SAE bolt is passed. These bolts form the trunnions on which the tube is tilted. Place a leather washer next to the tube, then a steel washer, and lock the bolt in place by means of a nut. Two triangular aluminum plates cut as shown in the drawing form the side pieces of the yoke.

Fasten the side pieces to a hardwood platform by means of ten 2 in. flathead screws, five on each side. Countersink the holes. A friction-bearing surface is obtained by the use of oil-soaked leather washers. See the drawing for details. The bottom of the yoke is drilled to pass two standard ¼ x 20 camera tripod bolts. This is necessary so that the telescope can be mounted on a camera tripod. The platform is rounded out at one end to permit maximum elevation for the telescope.

And now for the actual optical alignment. Point the tube at the sky or at a brightly illuminated wall. Apply the eye to the top of the eyepiece adapter. As you look through the adapter you will see the prism. Then, reflected in the prism you will see the walls of the tube and at the bottom a white disk—the mirror. In the middle of the mirror will be a secondary and smaller image of the prism suspended by its three supports. All of these images should be concentric. If the prism is not in the exact center of the tube, it can be made so by loosening or tightening the acorn nuts which hold the legs to the tube. The mirror should be adjusted so that the image of the prism is in its exact center. The best way to do this is to have an assistant turn the thumb nuts at the back of the cell, one or two at a time, while you observe the results by peering through the eyepiece adapter.

Note that a finder telescope was used in order to help aim the big instrument. This is

[*Continued on page* 144]

Write your own Ticket to Endless Fun with a

HARLEY-DAVIDSON

Want adventure? Like thrills? Eager to go places and see things? Then join the thousands who have found happier, healthier outdoor enjoyment, new friends, and endless fun in motorcycling . . . world's greatest sport! Every trip is delightfully different, every moment memorable, as you take in exciting race meets, endurance runs, hillclimbs . . . go on gypsy tours and sightseeing trips. Get your share of these wonderful times now. See your Harley-Davidson dealer today.

MAIL THIS COUPON NOW! MAIL THIS COUPON NOW!

HARLEY-DAVIDSON MOTOR CO., Dept. MI, Milwaukee 1, Wisconsin

Send free copy of ENTHUSIAST magazine filled with motorcycle action pictures and stories; also literature on latest models.

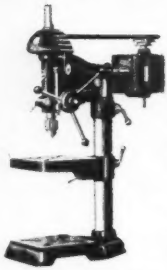
Name.....

Address.....

City.....Zone.....State.....

15" BENCH MODEL* $69.00

Atlas DRILL PRESSES



Use it for pleasure or profit — or both — you can't beat an Atlas drill press for fast, accurate, low-cost drilling, and tapping. And with special low-cost attachments it mortises, routs, sands, carves, shapes, and performs countless other time-saving jobs for you. Table tilts full 90° for extra versatility, base surface is ground as an auxiliary table for long work.

12¾" BENCH MODEL* $59

15" FLOOR MODEL* $79

Atlas drill presses are ruggedly built to give you years of service, precision engineered for positive accuracy. Your Atlas dealer will help you choose the model best suited to your needs. See him today — and write direct for free literature.

*Prices less motor F.O.B. Kalamazoo

ATLAS PRESS COMPANY
952 North Pitcher Street,
Kalamazoo, Michigan

MI's Portable Telescope

[*Continued from page* 142]

not a necessity but will help you pick up celestial objects. It should be of low power, about 6 times is sufficient.

Notice in the picture at the bottom of page 122 that the finder telescope is situated at the side of our instrument while the eyepiece adapter is on top. This set-up is best if you are going to use this 'scope for looking around the landscape. It will give you an erect image when you look down into the eyepiece and your back is facing the object to be viewed.

However, if you are planning to make this telescope to view the stars, it is best to place the finder telescope on *top* of the main tube and place the eyepiece and its adapter on the side. This is necessary in order to avoid climbing up on a box to reach the eyepiece when the telescope is pointed near the zenith.

Never, under any circumstances, point the telescope at the sun. Its intense heat will blind you.

Astronomical eyepieces or oculars are made in a standard 1¼ in. O. D. Focusing is obtained by either sliding the eyepiece in and out of the adapter with a twisting motion or by means of a focusing adapter for the eyepiece. This is a refinement and will be well worth the extra cost.

You can make an eyepiece but we advise that you purchase one. A 1 in. eyepiece costing about $5.00 will give you a magnification of 54 times. A ½ in. eyepiece will yield 108 times magnification while a high-power eyepiece with a focal length of ¼ in. will give you 216 power. We recommend that you first get a 1 in. eyepiece. This will give you plenty of power to observe the moon, the plants and nebulae as well as terrestrial objects.

Now we are ready for our first look. The object most generally chosen is the moon. For best viewing, wait until the moon is at either first quarter or last quarter. A look at the full moon will be very disappointing.

Insert the eyepiece in the adapter and locate the moon in the approximate field of view by means of the finder telescope or the peep sight. At first you will be a little disappointed because all you will see is a giant glob of light. With bated breath you will find yourself adjusting the eyepiece until this glob of light finally resolves itself under our trembling fingers into the rill and valleys, mountains and crators of our nearest heavenly neighbor. A never-to-be-forgotten thrill! •

Write to MECHANIX ILLUSTRATED, 67 West 44th St., New York 18, N. Y., for a complete list informing you where all optical supplies necessary for constructing this telescope can be procured. Please include a self-addressed stamped envelope with your letter.

New IN PERFORMANCE

Marlin's 88C sets new standards of rapid-fire reliability in the .22 semi-automatic field!

Can you pull a trigger five times a second? This Marlin is faster! What about fouling? Marlin's new bolt and receiver design is virtually foul-proof! There is *no* opening back of ejection port to permit dirt-fouling.

Take-down is simple and fast. Action *cannot* be disassembled if rifle is cocked. Positive sear-locking Safety prevents accidental firing. Breech bolt specially designed to reduce smoke escape and blast to minimum.

Model 88C is a 15-shot tubular magazine semi-automatic rifle. Shoots .22 cal. long rifle ammunition, greased or waxed, regular and high velocity, with lightning speed and remarkable dependability.

American Black Walnut stock. Equipped with hooded ramp front sight and Rocky Mountain rear sight. Barrel length 24"; overall length 45"; weight approx. 6¾ lbs.

NEW 1948 Marlin Gun Catalog now available. Enclose 10¢ with name and address.

88C... $30.50

Price slightly higher west of Rockies and in Canada

BOYS! Be a Ranger! Write Sportsmen's Service Bureau, 343 Lexington Ave., New York, for FREE booklet on marksmanship.

Marlin

Who said Good Blades have to be High Priced?

THE MARLIN FIREARMS CO. NEW HAVEN, CONN. Fine Guns Since 1870

Making Steps from Stone

[*Continued from page* 103]

against it to hold it in place. Where choice stone in the form of large, thick slabs is available in sufficient quantity to complete a stair project, the job may be done without the aid of a guide board, as shown in Photo No. 3. In this case, the thickness of the tread stones is more or less equal to the riser height, thus very little mortar is necessary. The stones are leveled up and set in position by slipping stone-chip shims under them where needed; then fixed with mortar filling. When working up against a wood-sided building, as shown in this photo, cut away all siding below the level of the top step and carry the stone back to the sheathing; then bring the siding down onto the top tread, as the skirt board is treated in Fig. 2F. This arrangement sheds water running down the siding, preventing it from leaking into the building. Fill the joint with caulking compound to make it tight.

A good mortar consists of one part of Portland cement to three parts of medium washed sand. After mixing the cement and sand, add just enough water to make a batter that will hang on the trowel. For a soft-mortar bed under the flags, use slightly more water. A weaker mix (one of cement to five or six of sand, with very little water) will do for dry mortar used in the footing. Allow ample time for the mortar to set up hard before putting the steps into service. In cold, damp weather, this may take several days.—*J. Modroch.*

Darkroom Sink

[*Continued from page* 140]

depressed "spillway" drains the wash tray. It can be emptied by siphoning with a short piece of rubber hose. About the time I was building this sink I learned of a liquid plastic, *Phenoplast* which cures in about a week without heat or pressure. This, I decided would be the means of waterproofing my sink.

The wash compartment measures 15 in. in width, large enough to take a 14x17 in. print. A rack was made for the bottom of the compartment to raise the trays and to catch any bits of paper and other debris which might clog the drain.

The sink is supported by a rack which holds the trays, stock bottles and odds and ends. The faucet shelf is screwed to the back edge and provides a handy place for graduates and tongs. The safelight and white light are mounted on the wall over the sink. Unfortunately the darkroom is so small that even a wide-angle lens won't permit a picture to be made of the final installation, but you can be sure it works and works efficiently.

—*Don Bennett*

Control-Line P-26A

[*Continued from page* 117]

One coat of clear dope liberally applied and sanded lightly will remove the balsa nap. A good grade wood filler should be applied with intermediate light sandings until the model is very smooth. Aerogloss dope was used, but any good model finish can be substituted. The wings and tail are yellow and should be painted first. The fuselage stripe is red with a white outline. This is done as follows: first paint the entire area white. When dry, cut masking tape to the shape of the white stripe and stick in the location of the white outline. Now paint the fuselage royal blue, making certain the yellow colors are masked off. The red stripe can be painted between the two masking tape stripes. Now pick off the strips of tape and you will have a red stripe with white outline. Easy, eh?

All headrest and tail scalloping is red. The wing stars and squadron insignia are decals which can be bought at the local hobby shop. "U. S. Army" is painted in black on the underside of the wing. The rudder stripes are also painted. Windshield antennae, guy wires and control line guide complete the model.

Balance the model at the pivot point by adding lead shot to the nose, if necessary. Flying is quite simple. Use .014 in. dia. stranded steel flying wires about 45 feet long. Use plenty of power when flying your "Pea-Shooter" and you will find it easy to control. •

Baby's Bathtub

[*Continued from page* 131]

tub at a more convenient level for the young mother to work at.

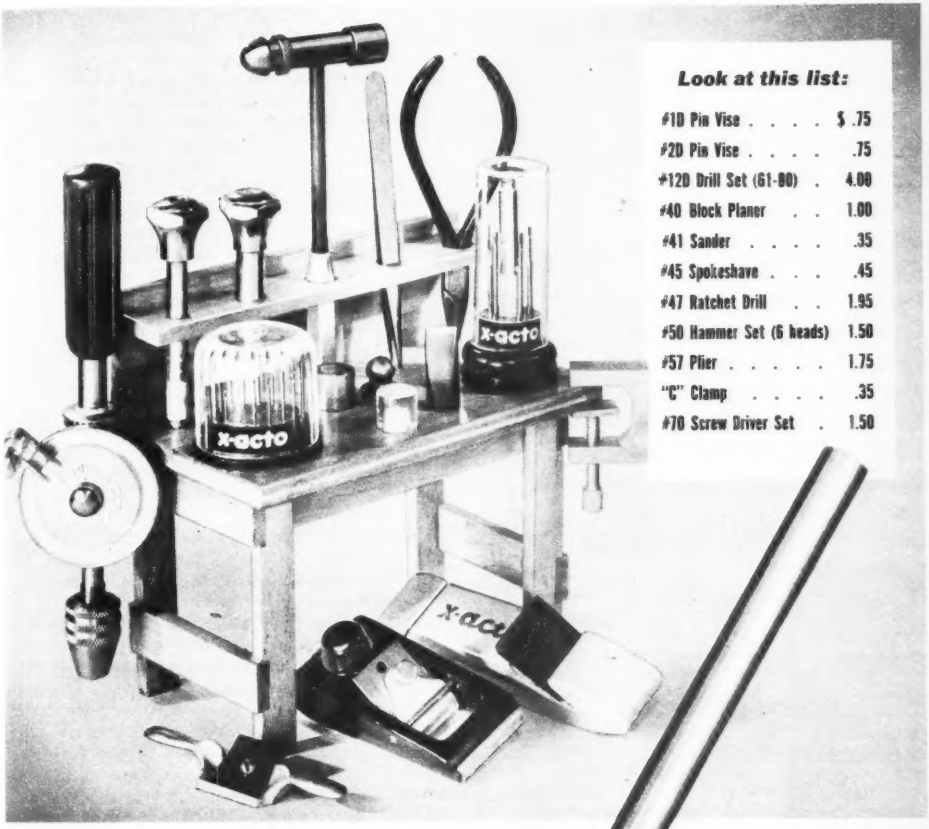
Building the tub was much like building a simple form of boat and it went easily enough. The two sides were, of course, cut out at one time on the circular saw.

Nailing strips were glued at both ends of the side pieces as shown, using Weldwood waterproof glue and nails. The latter were driven from the outside and were crimped over to assure a tight glue joint. Similar nailing strips were fitted inside the side and the end pieces to give proper support to the bottom. Strips were nailed and glued before assembling the tub's components. Because of its awkward shape, the nails had to serve as clamps for the glue.

The bottom was simple enough, although it required some pretty accurate fitting. It is put in place after the sides and ends have been assembled but should be carefully fitted before any parts are glued together since sides, ends and bottom should all be glued at one time. This reduces the likelihood of setting up stresses in the finished job in case one part is not quite a true fit. •

X-actly what your work bench needs . . .

X-ACTO* HOBBY TOOLS



Look at this list:

#1D Pin Vise	$ .75
#2D Pin Vise	.75
#12D Drill Set (61-80)	4.00
#40 Block Planer	1.00
#41 Sander	.35
#45 Spokeshave	.45
#47 Ratchet Drill	1.95
#50 Hammer Set (6 heads)	1.50
#57 Plier	1.75
"C" Clamp	.35
#70 Screw Driver Set	1.50

Here they are, the just-right tool for every imaginable hobby job . . . specially designed to get into hard-to-reach spaces, work handily on small surfaces . . . with the finesse and dependable accuracy that have made X-acto knives and tools the choice of experts in every art and craft field.

And there are many more. See them at your favorite hardware, gift, hobby or department store. And while you're there, take a look at the line of X-ACTO REFILL-BLADE KNIVES . . . always super-sharp, always ready to help you turn out slicker jobs, quicker. Sold singly and in sets, 50¢ to $50.

(Prices slightly higher in Canada.)

x-acto*

KNIVES & TOOLS

X-acto Crescent Products Co., Inc.
440 Fourth Avenue, New York 16, N. Y.

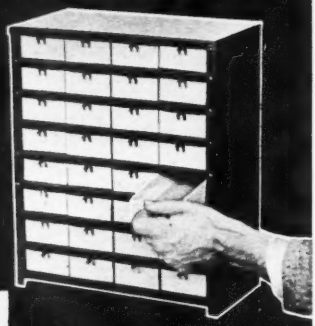
In Canada:
Handicraft Tools, Ltd., Hermant Bldg., Toronto

Reg. U. S. Pat. Off.

NOW

THE JIFFY METAL CABINET
WITH RUSTPROOF ALUMINUM DRAWERS

32 DRAWER UNIT $8.95
POSTAGE PAID
64 DRAWER UNIT $15.95



APPROXIMATE SIZES DRAWER
1¼" Deep
2¾" Wide
6" Long

32 DRAWER UNIT
6" Deep
12¼" Wide
15¼" High

64 DRAWER UNIT
6" Deep
25½" Wide
15¼" High

for home or shop, the handy way to keep small parts, washers, nuts, bolts, nails, screws, etc.

AND STILL AVAILABLE
32 DRAWER UNIT $5.95
POSTAGE PAID
64 DRAWER UNIT $9.95

Solid one-piece aluminum drawers for greater strength and long life—and still at low cost. So handy to keep office, shop, work bench, household and hobbyist needs at your fingertips. Spot welded steel cabinet, enamel finish, and metal flange drawer guides.
32-Drawer Unit — $8.95. 64-Drawer Unit—$15.95. Postage Paid. Send check or money order. No C. O. D.'s, please. Add 3% sales tax for Ohio orders.

THE JIFFY METAL CABINET
WITH LAMINATED FIBREBOARD DRAWERS

Same steel cabinet as above with covered fibreboard drawers. Suitable for most home needs. Thousands in use. 32-Drawer unit —$5.95. 64-Drawer unit—$9.95. Postage Paid. Check or money order. No C.O.D.'s. Add 3% sales tax for Ohio orders.

KAYTEE PRODUCTS
DEPT A • BOX 588 • CANTON, OHIO

The "Miracle" Drugs

[*Continued from page* 59]

symptoms returned in more violent form. What had happened, tests revealed, was that the tubercle bacilli in Archie's body had become several thousandfold more resistant to streptomycin.

Evidence that germs are learning to fight back with diabolical ingenuity leads some men to predict that many of our wonder drugs are working themselves out of a job. Near panic ran through medical circles two years ago when penicillin lost its punch. At many a bedside, as patient grew worse despite ample doses of penicillin, doctors wondered if their most wonderful weapon were turning into a blank cartridge. It was finally discovered that, unknown to anyone, new manufacturing methods were diluting penicillin with ineffective sub-types.

This spring a new form of penicillin, crystcillin, was developed and rushed to hospitals all over the country to try to give the drug a more lasting effect and to permit injections to be made daily instead of hourly in treating infections.

The British Medical Journal, cites the ability of pus-forming germs (against which penicillin is especially valuable) to develop up to 3000-fold resistance to the drug and says with foreboding:

"We must indeed look to a future in which the problem of treating these infections has almost to be faced afresh."

A new family of anti-histamine drugs—so called because they suppress the body chemical that creates distressing symptoms in allergies—is increasingly popular with victims of hay fever, asthma and hives. Drowsiness and dryness of the mouth are the most common, and quite mild, side effects of these drugs. Dr. Benjamin Slater of the Eastman Kodak Company reports the case of a hayfever sufferer who took an anti-histamine drug while at work. He became drowsy, lost control of his cargo truck and was nearly killed when it crashed from the loading platform.

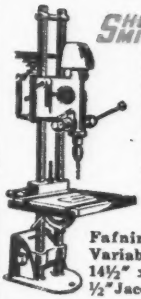
In an ideal world, doctors would treat every illness curable by sulfa or penicillin or some other wonder drug by identifying the germs responsible and measuring their drug resistance. Then doses ample enough to destroy all of them, including the toughest, would be given. Unfortunately, in a busy practice this is impractical in all but the most serious cases. Some doctors feel that the much-despised "shotgun therapy" may be the answer to drug resistance. That is, two or three drugs in a single dose presumably would wipe out even the resistant germs, since those untouched by one medicine would be felled by another.

Yes, wonder drugs are wonderful—but . . . they *can* kill you! •

A LOT OF POWER TOOL IN A LITTLE SPACE

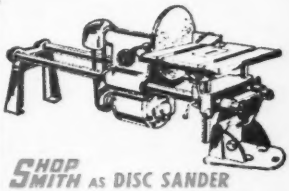
SHOPSMITH REG. TRADE MARK

SHOPSMITH AS CIRCULAR SAW Has maximum distance of 46" between blade and fence. Tilts to any angle—positive lock. New principle provides micro-adjustment of distance between fence and saw blade. *Specifications:* Saw Blade: 8" Dia. Depth of cut 2¼". Table: 14½" x 17"; with extension, 54" x 17". *Equipment:* 8" saw blade and arbor. Table extension. Mitre gauge. Rip fence. Saw guard.



SHOPSMITH AS VERTICAL DRILL PRESS

Capacity: Drills to center of 15" circle. Clearance: Table to chuck—27" max. Spindle: ⅝" Dia., 6 spline, hardened tip. Spindle Feed: 4¼". 4 grease-sealed Fafnir ball bearings. Variable speeds. Table: 14½" x 17". *Equipment:* ½" Jacobs key chuck. Fence.

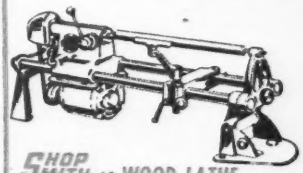


SHOPSMITH AS DISC SANDER

Disc Diameter: 12". Table Dimensions: 14½" x 17". Tilting Table. *Equipment:* 12" disc. Mitre gauge.

SHOPSMITH AS HORIZONTAL DRILL PRESS

Only *SHOPSMITH* performs this highly useful function. No limit to length of work. Provides accurate method of drilling for doweling, etc.



SHOPSMITH AS WOOD LATHE

34" between centers. Swing: 15". Variable speeds. Quill Feed: 4¼". Equipment: Tool rest. Drive center. Cup center.

Complete 5-in-1 *SHOPSMITH* — 59" Long By 18" Wide — Only $159.50. With Special ½ H.P. Ball Bearing Motor, $195.50

You're looking at a new kind of power tool. It's *SHOPSMITH*—a circular saw, wood lathe, disc sander, vertical and horizontal drill press *all in one*. For the first time, a multi-purpose power tool with full usefulness in all five positions . . . and convertible to grinder, buffer, router, drum sander, shaper, scratch brusher. And just *59" long by 18" wide*. Yes, *SHOPSMITH* outworks single purpose tools of comparable size . . . and you can change from tool to tool *in less than one minute*.

BUILT RUGGED

SHOPSMITH has cast iron headstock and carriage. Centerless ground and polished steel ways. Heavily reinforced aluminum table. Four life-long grease-sealed Fafnir ball bearings. Weighs over 200 pounds.

PRECISION MACHINED

Each *SHOPSMITH* part is precision-machined, factory-tested. Carriage is precision-bored and gauged. Gives cutting tool and work support constant relationship. *You can work more accurately* with *SHOPSMITH*. Have *SHOPSMITH* demonstrated for you in-the-store. Write for name of nearest dealer and free descriptive folder.

Magna Engineering Corporation
465 California Street, San Francisco 3

fly with mi *models*

That's what tens of thousands of well informed model builders throughout the country are saying—because that's what they're doing! Yes, MI models built from *FULL SIZE* MECHANIX ILLUSTRATED plans are the best. And for good reasons. The models are original (you can't buy a similar kit), they're designed by experts (your guarantee for the utmost in perfection) and, what's more, the plans are drawn so *any* model fan can easily complete the project.

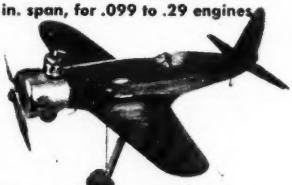
You'll build better models for less with an MI plan! The cost: Only 50¢ each.

SHARKIE . . . . . Plan No. 377
22 in. span, Class VI, .60 engines

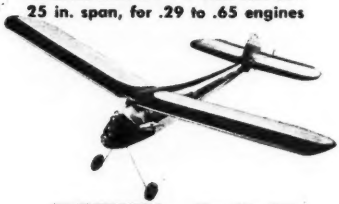
MR. MULLIGAN . . . Plan No. 374
39 in. span, for .29 to .65 engines

NIEUPORT SCOUT . . Plan No. 379
27 in. span, for .099 to .30 engines

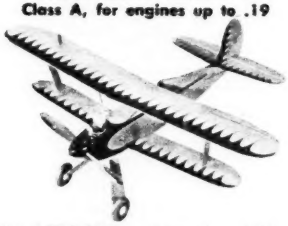
P-47 THUNDERBOLT Plan No. 375
20 in. span, for .099 to .29 engines



HUGHES RACER . . . Plan No. 381
25 in. span, for .29 to .65 engines



MI FLEETSTER*. . . Plan No. 376
Class A, for engines up to .19



MI ACROBAT . . . Plan No. 383
32 in. span, for .29 to .65 engines

***MI Fleetster is a free-flight model. All others are control-line.**

Address all orders to:

MECHANIX ILLUSTRATED Plans Service
Fawcett Building, Greenwich, Connecticut

PLAN No.

Enclosed is $ . . . . . Please send me the following plans

Name . . . . . .

Street . . . . . .

City . . . . . State . . . . . .

PLEASE PRINT CLEARLY IN PENCIL!

Tomorrow's Model Farm

[Continued from page 72]

his farm like a modern factory. He can adjust to scientific formulas the temperatures in all his buildings—and keep them right at the most desirable degree. He can check the moisture in his corn silage stored in the steel silo and his hay packed away in the metal loft. By precise control of both heat and moisture he can thus turn out more efficient fodder for fattening his livestock.

Good insulation is the secret of the economical heat and moisture control at Wisconsin's wonderful farm. The agricultural experts lined the walls as well as the floors of the barns and pens with thick layers of concrete. Since the metal roofs bolt down tightly on steel trusses, neither a blizzard nor a drenching big blow ruffles a hair on Bossie's contented hide. And thermostatic regulators keep that indoor weather always cozy, no matter what mischief the elements are whipping up.

Take the case of the little piggie that didn't go to the market. A full quarter of our annual pig crop "stayed at home"— because those little piggies got no temperature control and died of cold.

In addition to steel and concrete, glass also is getting a big play as a building material for the modern farm. Glass-lined silos will save the farmer money and give his cattle finer feed. The glass resists the lactic acid in the silage that eats into the wood of the old-fashioned silo and thus damages both the building and the fodder. On the model farms the glass is being fused into the steel walls of the big silos to give them an ideal, nontarnishing surface, inside as well as out.

Another use for glass on the new farm is to wall "living rooms" for cows. These special aluminum-topped barns permit the cows to amble about freely inside and casually chew the cud with each other until milking time. Then they're called from the "living room" into the "beauty parlor," an individual cubicle where each cow is milked in privacy.

Glass also lines one of the fanciest units for the model farm—the "Turkish bath" for the modern pigpen. Instead of the muddy hog wallow the pig waddles down into a glass-surfaced pool set in concrete and attached to the side of his steel home. After a leisurely bath in his sparkling pool, the sleek pig can saunter back and get a sun bath inside his turret-shaped house where a hinged roof folds back to let in sunlight and fresh air.

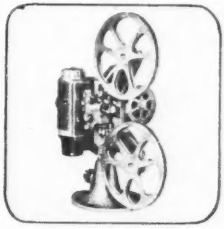
It's taken a long time but at last a new day is dawning for the weary-toiling farmer. When he peps up the old place with the new easy-life pushbuttons, there's going to be another twist to that old refrain: How're you gonna keep 'em down in the city—after they've seen the farm? •

FUSSY FANS
pleased as punch!

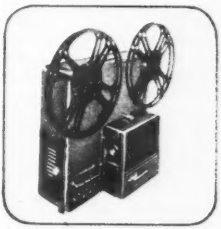
UNIVERSAL'S
Cinémaster II
best buy in home movies... all the film you want right now!

GOOD movies all the time make Cinémaster II loads of fun. Easy to load, a pleasure to operate, costs less to use. You'll take movies of your family . . . vacations . . . parties, pets and picnics. And there's never a shortage of film — Cinémaster uses all makes of color or black and white including UniveX Single 8 film. At every reliable camera store. *With f3.5 lens.* 51.90 . . *f2.5.* 66.65 . . *f1.9.* 96.75

UNIVERSAL CAMERA CORPORATION
New York, Chicago, Hollywood

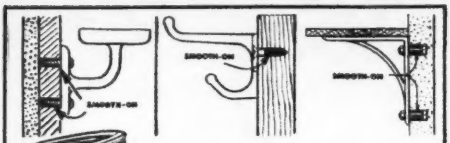


UNIVERSAL'S CINEMATIC
Best buy in 8 mm. home projectors. Quiet; completely gear-driven. Brilliant movies. Extra capacity 400 ft. reels. Coated f1.6 lens . . . 135.00



UNIVERSAL'S TONEMASTER
Best buy in 16 mm. sound projectors. Combines 24 features formerly available only at much higher prices. Reel capacity, full hour . . . 350.00

For Pictures that ~~Click~~ Click... click a UNIVERSAL



Loose Bathroom Fixtures Just Need SMOOTH-ON

Cup holders, shelf brackets, hooks, towel racks, soap dishes, etc., stay in place, once you anchor them with Smooth-On No. 1 Iron Cement. You apply it to screws and bolts and into the holes where they belong. Smooth-On hardens quickly and the repair stays tight, for Smooth-On expands a little as it sets. Get a 1¾-oz., 7-oz. or 1-lb. container of Smooth-On No. 1 and keep it handy not only for tightening loose parts and fixtures, but to stop leaks and seal cracks. If your hardware store hasn't Smooth-On, write us.

FREE Repair Ideas

Send for YOUR free copy of the 40-page Smooth-On Handbook of time-saving, money-saving repairs you can make in the home, on the car. Just mail us a postcard.

SMOOTH-ON MFG. CO., Dept. 69J
570 Communipaw Ave., Jersey City 4, N. J.

Do it with

SMOOTH-ON

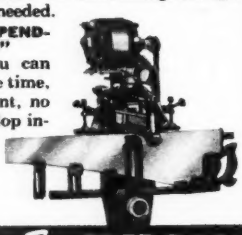
THE IRON CEMENT OF 1000 USES

Made **$900 IN SPARE TIME**

"I did very well last year with my Foley equipment, about 950 saws and 240 lawn mowers, in my spare time. About $900 for me." L.H.M., New York.

Make up to $2 or $3 an hour in Spare Time. With a Foley Automatic Saw Filer you can file hand, band and circular saws better than the most expert hand filer. Cash business—no canvassing. No eyestrain, no experience needed.

FREE BOOK—"INDEPENDENCE AFTER 40" shows just how you can start at home in spare time, with small investment, no overhead—and develop into a full-time repair shop. Send coupon today for this practical plan.



Send Coupon For **FREE BOOK**

FOLEY MFG. CO., 915-8 Foley Bldg., Minneapolis 18, Minn.
Send Free Book—"INDEPENDENCE AFTER 40"

*Name*_____

*Address*_____

Inventor's Paradise

[*Continued from page* 83]

worked out. Then the invention is offered for manufacture to any financially sound company or individual.

All during this time, you are receiving periodic progress reports on your invention. Either you or your representatives may examine the records at any time.

No matter how much work is put into the invention or how much money is spent by the Institute in its development, you pay nothing. The expenses are charged against the project only after a sale has been made and profits are rolling in.

Any funds left over from the Institute's share after operating expenses, are turned over to Slick's Foundation of Applied Research for the purpose of bettering the world through scientific experimentation. The Foundation depends, to a great extent, upon money received from Institute profits on experiments which are financial successes.

Many projects are now in stages close to final marketing. The inventors freely tell of their gratitude to the Institute. One man who enthusiastically praises the work of the Institute is Louis G. Martin of San Antonio.

Martin got very tired of stopping his car, opening his gates, and then closing them again after he drove his auto on to his property. So he tried a bump-gate. But then he found that the rear fenders of his car were getting scratched up when the bump-gate caught him half-way through, as it often did.

So Martin, a carpenter and contractor, put on his thinking cap—the gadget with the genius-bulb on top. He came up with a plan for a double-action bump-gate which would swing open at a touch from the bumper and stay open long enough for his car to get through. Then, it would swing closed again.

Martin had heard about the Institute, which is in his home town. So he turned the plans over to them. Redesigned and completely rebuilt, the bump-gate is now ready for market. It's eagerly awaited by ranchers and home-owners all over the southwest.

That bump-gate swung open widely for Martin. It opened up avenues of fame and wealth which he had never suspected were possible for him. A Utopian dream of inventors—the Institute of Inventive Research had helped him accomplish it.

Perhaps you don't have a new-type bump-gate to offer the Institute. Maybe your bright idea consists simply of that frying pan that flips eggs over. In either case, the Institute will listen sympathetically, advise expertly and then proceed to see that your invention hits the money-making markets.

You dream 'em up—the Institute of Inventive Research will do the rest! •

Catching by Hypnotism

[*Continued from page* 91]

it is the art of feeling quietly and carefully with the bare hand under ledges and holes along a river bank to locate lazing catfish. The noodler's touch is so delicate that he can run his hand under the entire length of a catfish without causing it to dart away. With light-fingered strokes, he actually mesmerizes the fish.

As a rule a noodler will grab smaller fish through the gills with his fingers. But from about 10 pounds on up he uses the hand hook or short barbed spear, because at that size the fish can bite. They work as a team, Tom in the water and Ira on the bank holding the line. Theirs is perhaps the only type of angling in which fish and fisherman are pulled in at the same time.

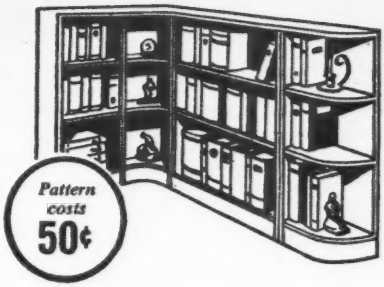
When he is underwater, Tom can frequently locate fish at a distance from the sound they make bumping their heads against the rocks, a nervous habit of resting cats.

Tom and Ira have become so accomplished that they are almost certain to bring back food every time they go out. Many's the time Tom has noodled a 45-pound mess in 15 minutes. But the big ones are what Tom is after because they produce the best steaks.

The biggest cat Tom ever heard of was caught in the White River. It weighed 125 pounds. But there are legends of giant blue cats several times that size. Some think that the celebrated White River Monster, which until recent years was a newspaper perennial, is actually nothing more than one of these super catfish. Tom can support the tall catfish tales with one of his own underwater experiences. He noodled a 30-pounder from the same hole in which he caught the 100-pounder. They found toothmarks on it up to the big fin, indicating that some outsize whopper had tried to swallow the smaller fish but couldn't make it.

The noodler isn't worried about snakes, gars, or big crawdads. Those things scamper out of the way fast. His main worry is snapping turtles, which grow large enough to chomp off a finger. Once Tom had a close shave when he met a 35-pound snapper with a shell almost as big as a washtub. He got a broomstick for the turtle to gnaw on while he brought it to shore. When he got there the turtle had chewed it in two. Even now he gets the shivvers when he thinks what that turtle could have done to an arm or leg had he gotten it in his jaws.

No matter how they catch their catfish, however, Ozarkians are agreed that there is no better way to cook them than rolled in flour or meal and fried in deep fat. Even flatlanders accustomed to turning up their noses at the mere mention of catfish are converted when they bite into the white flaky meat. •



MODERN... and a cinch to build with EASI-BILD* Full-Size Patterns!

You can build this bookcase for less than half the store cost. New, full-size patterns, step-by-step directions, and assembly illustrations make it easy. Use *Cascamite* Resin Glue, described below, for strong, stainfree joints throughout.

*Trade-Mark © 1948, Easi-Bild Pattern Co.

How to choose a glue!

Follow these directions and you'll solve all your gluing problems:

For boats, outdoor furniture, sports equipment—joints that must withstand outdoor exposure—*CASCOPHEN* (Resorcin Resin Glue). The first completely durable glue available to home-craftsmen.

For furniture, toys, heavy-duty home repairs—strong, stainfree, moldproof, highly water-resistant *CASCAMITE* (Urea Resin Glue). Mixes quickly with cold water!

For models, photo prints, labeling—general home, school, or office gluing, use the new, clean, white fast-setting *CASCOREZ* (Polyvinyl Resin Glue). Liquid, ready to use!

SEND COUPON FOR BOOKCASE PATTERN TO:

Casco Pattern Dept. MI-98
P. O. Box 215, Pleasantville, N. Y.

Enclosed is .....¢ for material checked below
( ) Bookcase, Pattern #42—50¢
( ) 32-page Pattern Book, illustrating 94 projects—20¢

Name_____

Address_____

City_____ Zone____ State____

THE BORDEN CO. • CHEMICAL DIVISION

Makers of Casco Glues

FREE ALLIED'S GREAT RADIO CATALOG!

172 Value-Packed Pages
SEND FOR IT TODAY

Everything in Radio At Lowest Prices!

Get ALLIED'S *latest* Catalog—biggest and most complete in Radio! Tremendous values in new Television receivers, home radios, latest Amateur receivers and Ham station equipment, Sound Systems. Everything for the Builder and Experimenter—thousands of parts, tubes, test instruments, tools, books, diagrams and builders' Kits—the world's largest stocks—all at money-saving low prices! Get your copy today.

The Only COMPLETE Radio Catalog

FREE Catalog! Send for it

ALLIED RADIO

ALLIED RADIO CORP., 833 W. Jackson Blvd., Dept. 6-J-8
Chicago 7, Ill.

☐ Rush FREE 172-Page ALLIED Catalog.

Name.....

Address.....

City..... State.....

Now for EVERY WORK SHOP!

NEW Invention **Electroplates by BRUSH**

Easy to Plate CHROMIUM
GOLD, SILVER, NICKEL, COPPER
. . . For Pleasure and Profit!

If you have a workshop—at home or in business—you need this new Warner Electroplater. At the stroke of an electrified brush, you can electroplate models and projects—you can replate worn articles, faucets, tools, fixtures, silverware, etc. with a durable, sparkling coat of metal . . . Gold, Silver, Chromium, Nickel, Copper or Cadmium. Method is easy, simple, quick. Everything furnished—equipment complete, ready for use. *By doing a bit of work for others, your machine can pay for itself within a week.* So make your shop complete by getting a Warner Electroplater right away. Send today for FREE SAMPLE and illustrated literature. ACT AT ONCE! *Mail Coupon.*

WARNER ELECTRIC CO., DEPT. T-3
1512 Jarvis Avenue, Chicago 26, Ill.

FREE *Details & Sample!*

WARNER ELECTRIC CO., 1512 Jarvis Avenue, Chicago 26, Dept. T-3
Gentlemen: Send Free Sample and Details to:

*Name*_____

*Address*_____

City *State*

MI Tests the New Ford

[*Continued from page* 92]

lighter than the '46 to '48 models. This reduced weight with an engine of 100 horsepower makes the new Ford the greatest performing stock vehicle ever made in America with a price tag of under $2,000. Frankly, this new Ford will outperform its big brother the 1949 Mercury with ease, and it will chase a Lincoln, without its overdrive, right up an alley also. In performance there isn't a car in the Ford class that's fit to carry the spare tire of this new job.

The entire Ford chassis has been redesigned. The Model "T" suspension has been dropped and in its place it uses independent coil springs in the front and longitudinal leaf springs in the rear. This overcomes one of the major complaints against previous Fords—bad riding. The '49er rides like a dream.

The drive change is another major switch. Instead of the former torque tube, the new car has what is known as a Hotchkiss drive. This means that the driving force is absorbed through the rear springs instead of through a torque tube and wishbone as in previous models. The Hotchkiss drive is much lighter than the old type and the action is noticeably softer. This will make for longer chassis and clutch life.

The newly designed frame accounts for much of the weight reduction. Instead of the former X-type frame of the past still used on the Mercury, Ford now has what is known as a K-type frame in all its closed cars. On the convertible and station wagon it still uses the X-frame—the convertible because it hasn't any top support and the station wagon because of the heavy loads it might have to carry.

On my return to Dearborn, I grabbed a two-door custom sedan and headed for the high-speed Ford track. After a few laps at 80, I gave it the gun and went up in a few hundred yards to 90 on the speedometer (which checked just a hair slow by a stop watch). I held 90, 91, 92 continuously for close to 40 miles. This car, to my mind, with its regular 16x6.00 tires, handles better than either the new Lincoln or Mercury at high speeds, especially on turns. Not that either the Lincoln or Mercury handles badly; they are tops in their class. But this new Ford is sensational. On a straightaway with overdrive it will do between 93 and 97, and from 90 to 92 without overdrive.

After giving this new car every kind of high-speed handling test and finding it tops, I made a number of acceleration runs from a dead stop to 60 through all gears. Here are the results: I went from 0 to 60 in 15.5 seconds. In high gear I went from 10 miles an hour to 60 in 19.4 seconds. That's fast in any company.

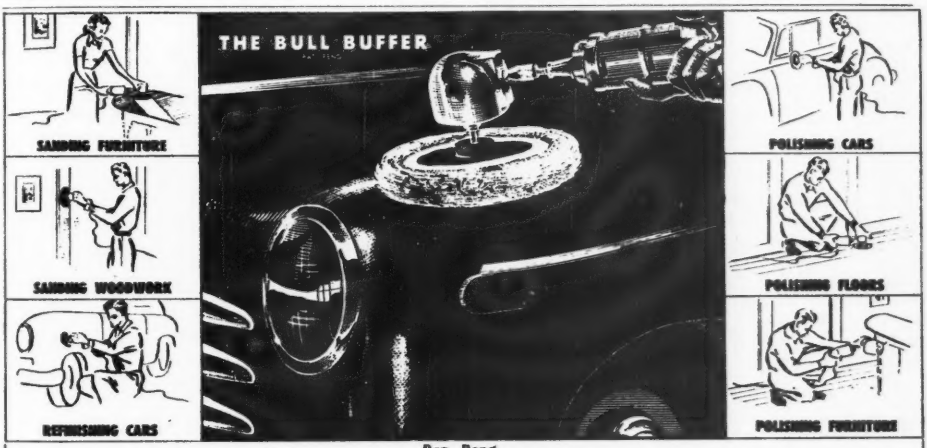
In summing up, I'll repeat myself and say Ford is out front by miles. It's class, brother! Hop in one and you'll see what I mean! •

"Company's more fun . . .
since Paw glued his chair to the door with Weldwood Glue"

When you want a wood-to-wood bond that will really hold . . . remember Weldwood Glue. It's quick to mix . . . easy to use . . . tremendously strong . . . stain-free . . . rot-proof . . . and permanent. At hardware stores, lumber yards, chain stores, in 15¢, 35¢, 65¢, 95¢ and larger sizes.

WELDWOOD
PLASTIC RESIN GLUE

United States Plywood Corporation, New York 18, N. Y.



Pat. Pend.

The *very first time* you polish your car, sand your own floors, refinish furniture, this tool has *more than paid for itself.* And what a kick you'll get out of doing all the polishing and sanding jobs that used to cost lots of money! With the Bull Buffer, you can do beautiful, *professional* work—make your car, furniture, floors, woodwork gleam like new. You'll find no limit to the ways Bull Buffer will save time and money in your home and business.

THE BULL BUFFER FITS ANY CHUCK ON AN ELECTRIC DRILL (OR FLEXIBLE SHAFT). Attach it quickly . . . polish and sand . . . then disconnect it and use your drill for any other purpose.

HIGHLY MANEUVERABLE. EASY TO OPERATE. Holding drill stationary, buffer can be turned in a *complete circle.* Bull Buffer easily reaches *all curved or flat surfaces.* It's RUGGED—POWERFUL—BUILT TO LAST A LIFETIME. Sturdy aluminum casting houses self-lubricated bearings and steel gears that operate in a bath of oil. All materials and workmanship are *guaranteed.*

The sooner you order, the sooner you'll have this handy new tool in your hands. It's a real bargain—only $9.95, *complete with five-inch rubber disc, sheepskin bonnet, and 2 sanding discs.* (Extra bonnet, $1.25; extra medium and coarse sanding discs, 10c each; wire brush attachment for removing paint, $1.75.) If your dealer doesn't stock, send cash, check or money order for $9.95, postage prepaid. C.O.D. plus postage.....

$9.95

Used in
HOMES
FARMS
FACTORIES
GARAGES
OFFICE BLDGS.
STORES
SHOPS
SERVICE STATIONS
CABINET SHOPS
METAL SHOPS
UPHOLSTERING SHOPS

BERTROM D. ENGINEERING COMPANY
3034 MAIN ST. *DEALERS WRITE FOR INFORMATION* KANSAS CITY, MO.

BUILD YOUR OWN 2500 WATT ELECTRIC LIGHT PLANT

All you need is an electric generator; a small engine to drive generator at proper speed; 2 dual sheaves; 2 V-belts; and a welded angle iron base. No wiring is involved, and you do not need to know anything about electricity to make this assembly.

Start out by buying the 2.5 KVA Leland Alternator shown above. It is a 120 volt, 60 cycle, single phase, A.C. generator, complete with radio filter box, and self regulating voltage. It must turn at 1800 r.p.m. for bright, even lighting. Requires 3¾ H.P. to turn generator at full load—so buy an engine of at least 6 H.P. to have plenty of reserve.

We will ship you the GENERATOR ONLY, without pulley or belts, for $125.00 freight prepaid. If your needs are urgent, we will assemble your set, using above generator and a 6 H.P. Salsbury gasoline engine, manually started, governor controlled, and ship to you $297.00 freight prepaid. Same unit but with Ensign conversion to run on natural gas $347.50 freight prepaid.

To eliminate time lapse for personal checks to clear, we suggest remittance by bank draft or cashiers check.

HOPFER & COMPANY
3126 EAST 14TH STREET, OAKLAND, CALIFORNIA

LEATHER CRAFTSMEN!

The famous BERNARD Belt Punch (Lodi and Paragon brands) now available again. The standard for years!

Revolving head with 6 tube sizes. A "must" for every leather craftsman.

At your local hardware store.

#286 and #386

Faithful Quality Since 1870

BERNARD

Sargent & Company (Schellhorn Div.)
87208 Water St., New Haven 9, Conn.

Mr. Fixit Went to Town

[*Continued from page 97*]

office for an oil burner company, later became New England representative for a paint company. In neither job was he either prosperous or happy.

One evening, a neighbor who admired his patchup skill suggested to Chamberlain that he start a fixit shop.

"But I can't fix everything," protested Chamberlain.

"Farm out what you can't fix yourself."

A few weeks later, the ex-Wall Streeter hung out a sign that read "If it can be fixed, we'll fix it," and started operating from his basement workshop. The first job he got was repairing the glass roof of a conservatory. It had always leaked and Chamberlain decided it was because the panes had been cemented in with putty.

Hiring as a helper a fellow who'd been on relief, Chamberlain substituted a corking compound for the putty. The leaks stopped but the new fixit man discovered that termites had long been working on the conservatory's wooden posts and had spread throughout the customer's adjoining house. He replaced the wooden posts with metal ones and suggested that experts be hired to exterminate the termites, a job which took months and cost a small fortune in repair work.

Chamberlain charged $300 for his job. After paying the workman and other expenses, he found that he'd cleared somewhat more than $100 for his two weeks of labor. And he'd been in business only for a month or two when he discovered that his new trade held limitless possibilities. One morning a uniformed chauffeur brought in a broken doll to be repaired. Chamberlain quickly fixed it and charged fifteen cents for his work. As the chauffeur was leaving, another customer came in and asked him to do a $1,500 re-decorating and re-modeling job on her home! Later, he got a $15,000 house job that took years to complete. Today he averages $30,000 worth of business annually.

Shortly after his start in March of 1936, Mr. Chamberlain sent out letters, soliciting business, to a chosen list of 1,500 local householders. The result floored him. Although three per cent in replies to such form letters is considered excellent, 25 per cent of the families he'd written to gave him orders.

Soon he was so pressed for space to put broken articles—everything from a cracked teapot to a divan that needed recovering—that he built a second workshop in the rear of his home. By the end of the year he bought a truck to haul in the tables and chairs, cabinets and toys his customers wanted fixed.

Before much more time passed, Chamber-

lain had a dozen men working for him, including his son and brother, had a fleet of six trucks and in 1938 was able to buy a two-story building on Greenwich Avenue, the main street in the business section of his town. Chamberlain, who has always maintained a non-union shop, had twenty men working for him, five of them on a full-time basis, when America entered World War II.

Dozens of other fixit shops meanwhile had started in the vicinity of Greenwich. Most of them specialized in radio repair work. Few of them lasted long.

Like many small businessmen, Chamberlain had his share of headaches during the war. He now has five men, including a disabled veteran, in his employ, and is gradually catching up on the work.

Chamberlain thinks that a young fellow with repairing ability and "an elastic mind" can set up a fixit shop in a basement on very small capital, if he is willing to work hard and at all hours.

"All I started with," he says, "was $400 in cash and $200 worth of tools, including power saws. They cost more these days than they did then. The best thing for the ambitious fixit man would be to start with a capital of from $1,000 to $1,500 and a truck. The equipment he would need to start with must include all ordinary small hand tools, a drill press, circular saw, band saw, lathe, soldering iron, paint spraying equipment, ladders, drop cloths and brushes, a carpenter's work bench. A small truck would be best at the beginning.

"Advertising won't cost very much," he continues, "There are the local newspapers, classified telephone directory and letters or postcards, including a prepaid reply card asking for the Fixit Man to call at a certain time."

Chamberlain thinks that the biggest element in his own success is his willingness to go out on emergency jobs during weekends when union plumbers and other workingmen aren't available.

"A hostess who has guests coming on Saturday and suddenly finds the plumbing out of order, seldom forgets the Fixit Man who comes to her rescue. She's your customer for life.

"During the first year, a capable Fixit Man, charging reasonable prices, should easily clear $50 a week. How much his pay increases after that depends on his skill, his eagerness to please people. Here we never let an article go out of the shop until we think it is perfectly repaired. The more difficult the job the better we like it. Maybe I'd be richer if I liked money more than I do.

"But I still get a kick out of fixing things and fixing them right. I'd rather do that than play golf—and I sure love golf. That is, I used to love it when I had time to play eighteen holes now and then." •

NEW FOREDOM Model #99 at an Amazing LOW PRICE

FLEXIBLE SHAFT MACHINE with PENCIL-SIZE HANDPIECE

$15.95 COMPLETE WITH MOTOR

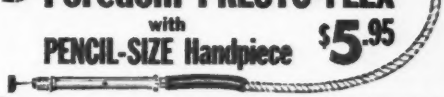
GRINDS, POLISHES, CLEANS, SHARPENS, MILLS, CARVES, ENGRAVES, ETCHES ON METAL, WOOD, GLASS AND PLASTIC

5 REASONS WHY FOREDOMS ARE TOPS:

1. Extra power and longer motor life because motor not dwarfed to fit hand. 2. Correct handpiece size for soft, sensitive, finger-tip control. 3. No obstructed view of your work. 4. Freedom from gyroscopic action—hence better work. 5. Small handpiece size lets you get into hard-to-reach places.

Hundreds of Uses

Foredoms handle hundreds of tasks. Use them for pleasure or profit, for tinkering or expert craftsmanship. Their versatility is unlimited. Use them to grind, polish, mill, engrave, sharpen, slot, rout, saw, carve, clean, sand, etch, cut, etc. Ideal for internal carving of plastics, the astounding new craft. You can work on wood, glass, plastic and all metals with a Foredom. No. 25 Accessory Set (A truly versatile assortment) only $5.50 extra.



Foredom PRESTO-FLEX with PENCIL-SIZE Handpiece $5.95

Now turn your old motor, drill press, or electric drill into a Flexible Shaft Tool. Simply attach to your electric drill, drill press or motor. Presto—a flexible shaft machine! Off again in a jiffy! Pencil size handpiece gives you finger-tip control. Gets into tight places you can't reach with any other tool. Handy 35" overall length. And—only $5.95 complete! Not to be confused with inferior imitations. Precision made, backed by ¼ century experience in this field. All parts replaceable. Order NOW. If ordered for use on motor, specify motor shaft diameter and add 50c for coupling. (Available for ¼", 5/16", ⅜", and ½" shafts.) No. 50 Accessory Set Available $1.50 extra. Order TODAY.

Over 60,000 Foredoms now in use

SEND NO MONEY

FOREDOM ELECTRIC CO., Dept. S-309
27 Park Place, New York 7, N. Y.

Mail Coupon Now

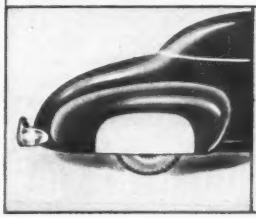
Please send me FOREDOMS checked below on 10 day trial.

☐ Presto-Flex Tool ($5.95)
☐ Motor Coupling (50c)
☐ Flexible Shaft Machine ($15.95)
☐ No. 50 Accessory Set ($1.50)
☐ No. 25 Accessory Set ($5.50)
☐ Catalog on request

Specify motor shaft diameter . . .
☐ Send C.O.D. plus postage. I will pay postman.
☐ I enclose payment. Send postpaid.
(Money back either way if not delighted)

Name _____
Address _____
City _____ Zone _____ State _____

FENDER SKIRTS . . . . . $17.20 PER PAIR



For Ford, Chev., Merc., Plym., Defiant, Chry., Dodge, Kaiser-Frazer, and Buick. Beautify your car . . . bring out the flowing lines inherently designed there. Sparkling beauty you'll like. Constructed of heavy gauge body steel, finished to please perfect fit.

SANDER MUFFLER CO
Box 794, La Tijera Sta.,
Los Angeles 43, Calif.

Gentlemen: Please send me one set of Sander Fender Skirts to fit my _____ (year and make of car)

☐ Check for $17.20 enclosed
☐ Ship C.O.D.

It's Kester for Real Soldering Efficiency

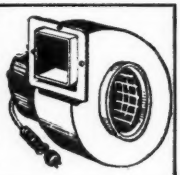
Kester Cored Solders—Acid and Rosin Core—are the choice of all home and hobby craft workers for clean, fast, and efficient soldering.

KESTER SOLDER COMPANY
4252 Wrightwood Avenue,
Chicago 39, Illinois

Factories Also At
Newark, New Jersey • Brantford, Canada

KESTER SOLDER

HEAVY CAST ALUMINUM BLOWER ONLY $10.00



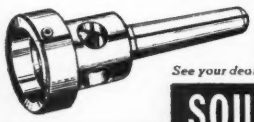
SINGLE EXHAUST BLOWER DELIVERS APP. 100 CU. FT. AIR PER MINUTE. Ready to install yourself with any household tools. It's built for that. Housing is solid cast aluminum to last indefinitely. 110 V., A.C., 50-60 cycles. Cont. duty motor.
DOUBLE EXHAUST BLOWER with 2 heavy cast alum. housings. Double intake and exhaust. Only $15.85. **Add 50c handling; $1 west of Miss.**
Send check, M.O. Money-Back Guarantee. Free literature.

UNIVERSAL YONKERS CORP., (1-9) 137 Alexander St., Yonkers 2, N. Y.

DIE HOLDER FOR LATHES

Mounts in tailstock spindle of lathe for holding 1-1/2 inch diameter button threading dies. Permits perfect alignment of die with workpiece to produce accurate threads. Die Holder precision-made from steel—shank accurately ground.

SOUTH BEND LATHE WORKS
453-A E. Madison St., South Bend 22, Indiana



***DIE HOLDER* with**
No. 2 Taper Shank . . $4.00
No. 3 Taper Shank . . $4.50

See your dealer—or sent direct postpaid.

SOUTH BEND

FASTEST PLANER in the WORLD at this Low Price... $215.00

BELSAW Multi-Duty Planer

Speed up production! Increase your profits! BELSAW power self-feeds at 24 feet per minute...The lowest-priced surfacer that will handle 12 x 6 in. stock. Planes green or dry sawed lumber into smooth, worked forms. Three high-speed steel knives make 42 cuts per inch. Multi-duty BELSAW takes inexpensive attachments for all planing mill operations—Jointing, Rabbeting, Grooving, Matching. BELSAW is the *only* 12 in. planer providing ***attachments for jointing and grinding its own knives.*** Start planning NOW for BIGGER VALUE and BETTER PERFORMANCE with BELSAW. Write for FREE specifications, illustrations and low prices.

● LARGER CAPACITY ● FASTER OUTPUT ● KNIFE SHARPENING ATTACHMENT

BELSAW MACHINERY CO B-1004 Field Bldg., 315 Westport Rd., Kansas City, Mo.

EVINRUDE Catalog Free

Describes complete line of 1948 Evinrude Outboard Motors—sensational new "Sportwin" model — 2 models with revolutionary "Weedless Drive" — 3 thrilling four-cylinder models. Gives helpful information on boats, speeds, etc. Profusely illustrated. Write

EVINRUDE MOTORS
5855 N. 27th St., Milwaukee 9, Wis.

OTTAWA Buzz Master

No Other Like It!

A faster brush cutter and wood sawing machine. Propels itself while cutting saplings and brush. 7 H-P motor. Many outstanding and exclusive features. Available attachments: sickle bar, rotary tiller, sprayer, air compressor, snow plow and pulley for belt work. Thousands in use. Send for FREE booklet.

OTTAWA MFG. CO., 1-887 Brush Ave., Ottawa, Kansas

BUILD ARC WELDER FROM OLD GENERATOR

WE SHOW YOU HOW
Light or Heavy Work

Produces 75-200 amperes. Takes no previous experience or hard work to make one of these welders. Complete plans 35c. Send for your **PLANS** today and we'll include FREE our Big NEW Catalog listing hundreds of electrical bargains.

LEJAY MFG. 1314 LEJAY BLDG. MINNEAPOLIS, MINN.

Print Your Own

Cards, Stationery, Advertising, labels, circulars, photo and movie titles, church work, tags, etc. Save money. Sold direct from factory only. Raised printing like engraving, too. **Print for Others, Good Profit.** Have a home print shop. Easy rules supplied. Send dime for press samples, supply book, all details and special advice on your needs. No obligation.

Kelsey, Inc., D-9, Meriden, Connecticut

MUFFLERS

STEELS and ALUMINUMS with a motorboat tone

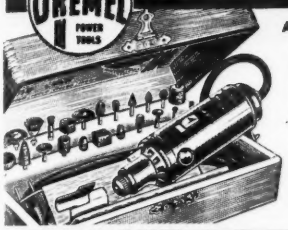
SINGLES, Chev, V-8, Plymouth, Steels $5.50, Aluminum $6.50. Chry., Olds., Buicks, etc., Steels $7.50, Aluminum $8.50. V-8 and MERCURY DUALS, Steel $17.50, Aluminum $20.00. Aluminums are guaranteed for life of your car.

DEALERS WANTED

SANDEE MUFFLER CO.
7523 S. WESTERN AVE., LOS ANGELES 44, CALIF.

MOTO-TOOL ★ THE "POCKET-SIZE" MACHINE SHOP

ELECTRIC DREMEL POWER TOOLS



APPROX. 27,000 R.P.M

A TESTED TOOL THAT PACKS YEARS OF PLEASURE

If you get a kick out of making things, you'll have fun with a Moto-Tool. It grinds, drills, routes, carves, polishes . . . does work better, faster . . . on practically any material. Moto-Tool is backed by 10 years of successful industrial service . . . also used by every branch of the Armed Forces. Compare Moto-Tool with other grinders and see for yourself why it's better.

10 Reasons Why Moto-Tool's a Better Buy

Oil-less, sealed bearings • Patented automatic chuck lock pin • Oversize armature shaft; hardened, ground, polished • 110 Volt, AC-DC motor • Sliding snap-type switch • Handy hanger hook; cord protector • Shock-proof bakelite housing • Dust-filtered air-cooling system • Dynamically balanced for vibrationless operation • Weighs only 13 oz.

PREWAR PRICES STILL PREVAIL

Moto-Tool Kit No. 2 with 23 accessories (high speed steel cutters, grinding wheels, polishing accessories) and heavy-duty professional Model 2 Moto-Tool in natural-finish, hardwood case ---------$23.50 (Items purchased separately would cost about $30.00; you save $6.50.)

Moto-Tool No. 2 with one emery point ---$16.50

Moto-Tool Kit No. 1, with 34 accessories and Model 1 Moto-Tool in wood case -----$17.50

Model 1 Moto-Tool, with one emery wheel point ----------$9.85

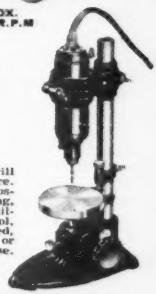
MONEY-BACK GUARANTEE:

Buy Dremel Moto-Tools from your dealer. If he cannot supply you, order direct from the factory on 10 day trial, money-back guarantee. Shipped postpaid for payment in full (send check or money order); or send only $2., we will ship C.O.D. You pay postman balance plus postage. Catalog of Moto-Tools and Accessories FREE.

DREMEL MFG. CO.
Dept. T-148-J • Racine, Wisconsin

New DREMEL DRILL PRESS

ONLY $9.95
(Less Moto-Tool)



Here's a portable, precision drill press at an amazingly low price. Just the thing for creating custume jewelry, model making, wood carving, routing, etc. Utilizes Model No. 2 Moto-Tool, which can be raised or lowered, swung in any direction, or quickly removed for off-hand use. Drill Press stands 12" high. Base is 6¾"x4". Weighs approximately 3½ pounds.

ASSEMBLE *King Midget*

New, low cost transportation. Practical. Safe. A pleasure to drive. Home assembly keeps cost low. Just bolt together our factory built units. Immediate delivery. Send 25c for detailed circular with large picture. 4-view drawings, price of all parts. Or send for actual Assembly Book with 12 photographs, blueprints, drawings, sketches. AND above literature—all for $1 (refunded first order.)

MIDGET MOTORS MFG. CO. *Athens, Ohio*

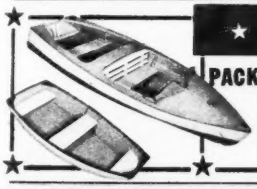
FINE TOOLS *NEED* FINE OIL!

• Lubricates
• Prevents Rust
• Cleans • Polishes

SOLD EVERYWHERE

3-IN-ONE *Oil*

★ BUILD YOUR OWN BOAT ★



PACKAGED BOATS For Home Assembly

Save 50%—build from our complete, easy-to-assemble plywood kits. All parts pre-cut, frames pre-assembled. 16 finest designs available in kit form (8 to 18 ft.) $34.50 up. Send 25c (coin) for illustrated literature.

BOAT BLUEPRINTS • PATTERNS

60 finest plywood designs—large scale blueprints—full size patterns available—kayacks to cruisers—send 25c (coin) for design catalog, or $1.00 for catalog plus booklet, "How to Build Plywood Boats." By William J. Deed, N. A.

MARINE MART, BUFFALO 7H, N. Y.

The New Improved All-Purpose **DYNAMIC Super Charged ARC WELDER**

Industrial Transformer Type

IT WELDS ● IT BRAZES ● IT SOLDERS

IDEAL FOR AUTO—HOME APPLIANCE AND FARM REPAIRS. This portable, industrial transformer type welder easily carried right to the job **can be operated from any convenient properly wired 110 Volt 60 Cycle Line.** Can also be supplied for 220 volt 60 cycle operation and other voltages and cycles at slight additional cost.

EASY-TO-OPERATE. If inexperienced you can easily learn to do a variety of high grade welding jobs by following the practical, simplified **Welding** and **Operating Instructions furnished.** Once you see the **DYNAMIC WELDER** in operation you won't want to be without it. Its simplicity will amaze you. In a year the **DYNAMIC** only costs you about 7c a day. Comes complete ready to operate with helmet, rods, cables, holder, operating and welding instructions, etc.

SAVES YOU VALUABLE TIME AND MONEY!

DESIGNED TO DO HIGH GRADE WELDING inexpensively—Maintenance Men, Farmers, Mechanics, Machine Shops, Foundries, Auto, General Repair and Job Welding Shops, all using the **DYNAMIC** find it so indispensable and useful that they can not afford to be without it. **Works on Iron, Steel, Brass, Bronze and Other Metals.** Has 8 metallic and carbon arc heat stages. Does work you would think only possible with a larger, more expensive machine.

ONLY **$28.50** COMPLETE

DO YOUR OWN WELDING

Just a few repair jobs will pay for this machine. A practical and profitable machine tool for any workshop. Make money doing repair work for others.

Write for Particulars

Get Details on our 10 day Trial Offer

Member Chicago Association of Commerce.

DYNAMIC WELDER CO., 15 East 23rd Street, BN. CHICAGO 16, ILL.

Pull the trigger and the iron heats itself!

QUIK-SHOT

SOLDERING IRON

Most amazing iron you ever saw!

NO Electricity!

NO Blowtorch!

NO Flame!

Needs NO EXTERNAL HEAT of any kind!

A small chemical cartridge supplies intense heat. Pull the trigger; the iron

HEATS ITSELF

Reaches working temperature in 5 seconds! Holds it 6 to 10 minutes. Peak wattage rating of 200. For large jobs or small. Interchangeable ¾", ½", ⅞" tips. Lasts a lifetime. SAFE! No sparks or flames!

Open tip, insert cartridge, screw shut.

Pull spring rod "trigger" button on handle, and release.

Price with 1 Tip (Specify Size) and 4 Cartridges. Postpaid. **5.95**

Additional Tip..... **1.50**

Extra Cartridges **4 for .49**

See Editorial Comment

KEMODE MFG. CO., Dept. A
2 W. 46th St., New York 19, N. Y.

LATEST DEVELOPMENT OF MODEL ENGINE SCIENCE

Ohlsson & Rice

Power your models with the 1948 Ohlsson & Rice Rotary Valve 23 engine. New glow plug principle eliminates coil, wires, or battery! Revs to 12,500 rpm with O & R fuels. 1/6 hp. Quality built by the world's largest model engine mfr. Discover today's biggest thrill in model engines—at hobby dealers everywhere.

Mail card for new fuel and glow plug folders

O & R 23 Rotary Valve with glow plug . $29.95
with sparks plug . $30.95
Fuel: Pt. 75c; Qt. $1.40
Glow Plug 85c

Standard of the Model World

OHLSSON & RICE, Inc., Dept. 12, Emory at Grande Vista, Los Angeles 23, Calif.

New IMPROVED *Electric*

MOTO-SAW

Only **$5.85** (with 3 Saw Blades) Postpaid

SAFE AS A HAND SAW JUST GUIDE IT!

More like magic than any tool you ever saw. Imagine an electric scroll saw only slightly heavier than a hand coping saw . . . a tool that takes no effort to run, no pressure to feed. Works at any angle—on big assembly jobs or on the tiniest piece you can hold in your fingers. Runs 7,200 strokes a minute . . . so fast the blade seems to stand still. Sturdily built . . . only two moving parts . . . never needs oiling. Easily cuts intricate designs—so smooth it eliminates sanding. Novice or craftsman, a thrill awaits you when you get a Moto-Saw in your hand.

No Limit to Length of Stock it Will Cut. Saws to Center of 19" Widths.

It's fast . . . cuts on an average of 1 ft. per minute up to 3¼" medium hard wood. Operates on 110-120 V. 50 or 60 cycle alternating current. If your dealer does not yet have Moto-Saw, send $5.85 . . . we'll pay postage. Or send $1, pay postman balance plus postage. MONEY BACK if not delighted after 5 days' trial.

THOUSANDS OF SATISFIED USERS

U.S. Patent 2239862
Other Patents Pend.

DREMEL MFG. CO.
DEPT. S148-J
Racine, Wisconsin

DEPENDABLE

Designed and built to put it 'way ahead in its field. Hand or power models. At your dealer.

MODERN
TOOL GRINDERS

MODERN GRINDER MFG. CO., Sheboygan, Wis.

LOW COST

SENSATIONAL NEW PORTABLE JIG SAW READY!

SYNCRO presents an amazing electric "plug in" jig saw—plug in to any 50 or 60 cycle AC 110-120 volt outlet—work in kitchen, anywhere—in apartments, houses! Cuts intricate designs on thin wood, metal, plastic. World's SAFEST Saw! Every family needs one—for fun and profit. Rush post-card for FREE colored Circular now!

SYNCRO SAW CORP., Dept. F-98, Rochester, Michigan

WOODWORKERS ...Get this

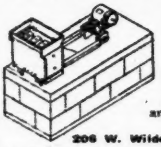
CONSTANTINE MASTER MANUAL

Get the Most Fun From Your Hobby

Indispensable to woodworkers. Newest, biggest edition, more pages, more color, helpful how-to-do-it articles, pre-war and new items, more bargains. Send 25c today and we will include ***FREE! FULL YRS. SUBSCRIPTION*** to Chips and Chats, published bi-monthly. Keeps you up-to-date on everything in woodworking, offers big money-saving bargains. Send now.

ALBERT CONSTANTINE & SON, Inc.
794-J, 135 Street, New York 54, N. Y.

BUILD THIS BLOCK MACHINE



Sell blocks; or build your home, garage, barn at ⅓ cost by making and laying your own blocks.

This simple machine which you can build yourself at a cost of about $15 (excluding motor) will make a block in 30 seconds using only one form. 2 to 4 forms can be used on each vibrator.

Power driven concrete mixer plans also. Send dime for details and "How to Make and Lay Blocks."

U-BUILD-IT SERVICE, Dept. 2-A
206 W. Wilder Tampa 3, Florida

New Designs in

FRANZITE GRIPS

Modernize Your Gun! Improve Your Score!

Most durable grips made. Positively unbreakable! For Colt, Smith & Wesson, Hi-Standard. Ortgies, Luger & Mausers in a wide choice of beautiful designs in ivory, pearl, walnut, onyx, etc. Low prices. FREE CATALOG. Dealers Wanted.

SPORTS, INC., (Mfrs.) 5501 Broadway, Dept. R-9, Chicago 40, Ill.

---

for AMAZING acceleration

DIXIE-WESTERN

DUAL INTAKE MANIFOLDS

Dealers Wanted

DIXIE-WESTERN
DUAL INTAKE MANIFOLDS for V-8 FORDS AND MERCURYS

$15.00 Gas Line and Throttle Kit $2.50 extra

Chrome Plated Velocity Stacks — $1.50 ea

By Test: Increased Acceleration by 26%
Increased Power and Speed by 11%

All DIXIE-WESTERN manifolds are brightly polished cast aluminum.

DIXIE-WESTERN MANIFOLD CO.
Box 564 Los Angeles 43, California

A must tool for electricians, maintenance men, home owners. Replaceable lamp inside Plier tests 110 to 250 Volts. Plier pulls fuses from 10 to 100 Amperes. Shockproof. Requires the use of only one hand. Can be obtained from General Electric or Westinghouse stores, from local electric dealers . . . or direct from us, Postpaid.

Price $2.75 without Leads, $1.50 additional for Leads. Order TODAY.
STAR FUSE CO., 235 Canal St., New York 13, N. Y.

SIXTH EDITION AUTOMOBILE RACING

Full description with over 100 illustrations of new fast racing creations. Working drawings with step by step building instructions for successful Ford 80 Midget—Model A Roadster—Offenhauser Dirt Track Racer—Miller 158.5 m.p.h. Racer. Details on axles, frames, engines, bodies, etc., etc. Entrance Blank with rules and regulations. A Book Full of interest for every Auto Racing Fan, Driver, Mechanic and Owner.

ORDER NOW! $2.00 POSTPAID; $2.25 C.O.D.

RAY F. KUNS DEPT. 61 CINCINNATI 27, OHIO

DUAL CROSS and ROTARY FEED

PALMGREN ROTARY, INDEX, MILLING TABLE No. 83

Has 8" table. 360° movement and 4" cross feed travel. Adjusting wheels and dials graduated in degrees and thousands. Slotted for bolting to table. No. 83 Priced $40.50. No. 82 without rotary feed $38.75.

Write for Circular No. 10

CHICAGO TOOL and ENGINEERING CO.
8349 South Chicago Ave., Chicago 17, Ill.

All Metal Candid Type CAMERA

Takes Pictures Day or Night...Indoors or Outdoors

COMPLETE WITH PRESS PHOTO FLASH GUN ATTACHMENTS
Plus EXTRA Gifts of
4 FLASH BULBS
2 BATTERIES
ROLL #127 FILM

Nationally Advertised Until January at $9.95

EXTRA SPECIAL PURCHASE CLOSEOUT

$5.95 TAX PAID

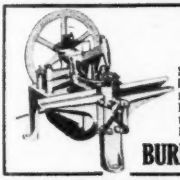
● National Manufacturer has slight Design Changes for Production Reasons and ENTIRE REMAINING STOCK $9.95 CAMERAS ARE BEING SACRIFICED AT BARGAIN PRICE

All stain-less aluminum lifetime construction, leatherette covered. Fixed focus 50 mm fluoride coated lens. True sight eye level view finder. Uses Standard No. 127 film. Pictures enlarge beautifully. Takes full color pictures, too. With press photographer style flash gun attachments takes pictures at night or inside where light is poor. Flash Gun snaps off for regular outdoors daylight pictures. Smart looking, a perfect every day all round camera that beats anything at anywhere near this price. Simple, even a child gets perfect pictures every time! Let actual home trial convince you.

SEND NO MONEY Take 16 PICTURES ... AT OUR RISK!

Send name, we'll send camera, flash gun, 4 flash bulbs, 2 batteries and No. 127 roll film. Pay only $5.95 C.O.D. plus postage on arrival. Take 16 pictures, indoors and outdoors. Develop film. If pictures don't delight you, return within 10 days of arrival for refund of full purchase price. (NOTE ... imitation leather shoulder strap carrying case with your name in gold letters only $1.50 extra. Sent only if specified. Be sure to clearly PRINT NAME you want on case in gold letters). All cash orders, we pay postage.

MARTINS-DAVID CO., Dept. 58-L,
179 N. MICHIGAN AVE., CHICAGO 1, ILLINOIS



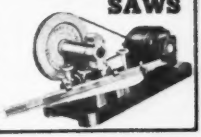
AUTOMATIC SAW SET

Set saw teeth automatically on hand or band saws—400 per minute without effort. Perfect hammer and anvil action sets teeth uniformly—No tooth breakage.

★ **IMMEDIATE DELIVERY**
Write Today

AUTOMATIC RETOOTHER FOR HAND SAWS

Cuts new saw teeth in 50 seconds—any size 4 to 16 points. Old teeth fall off as chips. Easy to operate. Does a perfect job.



BURR MFG. COMPANY, 8935-P Venice Blvd., Los Angeles 34, Calif.

WRITE FOR YOUR FREE COPY OF THE NEW KRW HYDRAULIC PRESS BOOK

Describes all manner of Production and Shop Work on KRW Hydraulic and Bench Type Arbor Presses. 32 pages illustrating the new KRW Hand-operated, Electric-operated and Air-operated Hydraulic Presses.
Write for your copy today.

K. R. WILSON, DEPT. 17, 215 MAIN ST., BUFFALO 3, N. Y.
Builders of Shop Equipment for Ford Dealers Since 1916

Easy to Fly

You can have this *Invader* All Metal Plane in the air in a few hours.

Just 8 Pre-fab Parts

$7.95

A beginner can put it together easily. Just 10 screws, solder the fuel tank, install your McCoy engine, put on your propeller and start having fun. Complete instructions.

McCoy "29" Model Engine

Plenty of power for the Invader and other planes. Easy to start... easy to run. **Only $19.50**

At your hobby dealer. If not available order direct from Duro-Matic Products Co., Dept. M, 1039 N. La Brea, Hollywood 38, Calif.

It's Easy... and Loads of Fun Make Your Own Flash Prints

ABBEY FLASH PRINTER

with built-in thermal timer

Now you can make professional quality photo prints quickly and at very low cost with the Abbey Flash Printer. No longer do you need expensive, heavy equipment. Abbey Flash Printer is small enough to carry anywhere. Uses handy pre-cut photo paper in variety of sizes. Turns out clean clear contact prints every time . . . thanks to the built-in thermal timer. Complete with easy to follow instructions.

Was $8.80

NOW $4.95

add 30c postage & handling
NO C.O.D.'S

BUY WITH CONFIDENCE AT

HABER & FINK, INC. Dept. M. 12 Warren St. New York 7, N. Y.

GENUINE DIAMOND SCRIBER!

WRITES ON GLASS, METALS, PLASTICS

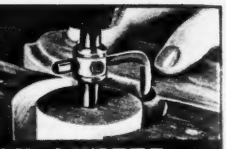
Never before at this price! Finest diamonds specially selected for cutting qualities. Set in hexagonal aluminum handle 6" long, by patented "Perma-Grip" method. Scribes or etches on glass, metals, plastics. Every scriber tested. Money back guarantee. Made by Clipper, foremost New York diamond tool manufacturer. Agent and dealer inquiries invited.

No C.O.D.'s. Send cash, M.O., or check.

$2.00 POSTPAID

CLIPPER DIAMOND TOOL CO., INC.
21 WEST 46 STREET NEW YORK 19

YOU Really Need *This* ALL PURPOSE CUTTER



Now you can cut holes, discs, grooves and rabbet in wood, plastic, soft metals. Users say "Worth $100." Fits drill press or brace. Every workshop needs one! Money back guarantee.

With 3 Bits ONLY **$1.50**

Send cash, check, money order to

SOUTHERN ENGINEERING & METAL PRODUCTS, Inc.
25 N. E. 17th TERRACE MIAMI, FLORIDA

POST PAID U.S.A.

Crosman *Silent* RIFLE

Adjustable power from compressed air. America's favorite for small game, target shooting indoors or out. Low-cost ammunition. .22 cal or .177 cal., single-shot or magazine. At all dealers; write for literature.

CROSMAN ARMS CO., INC. • 19 Henrietta St. • Rochester 7, N.Y.

SPEED AND POWER HANDBOOK

Very latest methods! Construct your own super-chargers, water injectors, compression heads, fuel saving devices—easily, practically without cost. Get racing speed, acceleration, dynamic power increases from any automobile! Build stock conversions! Fast roadsters. Hot-rods. Get ingenious formulas! Speed secrets! Also "Economy Information" tuning techniques! Ignition! Carburetion! Mileage tricks. Illustrations! Including "Restyling Ideas"—Streamlining. Model revising! Customizing! Sport changes. Photographs! Parts lists! Drawings! ORDER TODAY. $1.98 POSTPAID.

NEWHOUSE AUTOMOTIVE INDUSTRIES, 5941-C4 HEREFORD, LOS ANGELES 22, CALIF.

BOYS-IT'S FREE!

Exciting, new book tells about

"ATOMIC ENERGY"

and "THE WONDERS OF CHEMISTRY"

Also shows how to amaze friends with Chemcraft magic and do many exciting home experiments. Free. Send today!

THE PORTER CHEMICAL CO. 68 Prospect Ave., Hagerstown, Md.

EVERYTHING For The AMATEUR

TELESCOPE MAKER

Precision work, quality supplies guaranteed. Complete 6" kit . . . $5.50 up. 6" Pyrex . . . $7.50 up. Pyrex mirrors made to order. Aluminizing. Prisms —eyepieces—accessories. Free catalog.

PRECISION OPTICAL SUPPLY CO.
1001 East 163rd St., New York 59, N. Y.

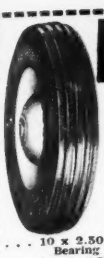
PULVEX FLEA POWDER

TWO KINDS

WITH 5% DDT
. . . for dogs. Kills fleas and lice quick. Keeps fleas off 5-7 days. Many home uses.

OR WITH ROTENONE
. . . for cats, dogs. Quickly kills fleas, lice. Kills fleas when put on a single spot. Pre-war formula.

EITHER KIND: 25c & 50c



WHEELS
AT BARGAIN PRICES

. . . 4" wheel and tire 5/16" steel sleeve	$ .48 ea.
. . . 5" wheel, 3/8" solid tire, 5/16" steel sleeve	.65 ea.
. . . 6" wheel, 3/8" solid tire, 5/16" steel sleeve	.75 ea.
. . . 7" wheel, 3/4" solid tire, 3/8" steel sleeve	.85 ea.
. . . 8½x1" wheel, solid tire, 3/8" bronze bearing	1.35 ea.
. . . 8x2" wheel, semi pneumatic tire, 7/16" Ball Bearing	2.50 ea.
. . . 10 x 2.75 wheel, semi pneumatic tire, ½" Ball Bearing	5.75 ea.
. . . 10 x 2.50 wheel, semi pneumatic tire, ½" Ball Bearing	4.50 ea.
. . . 12 x 1.75 semi pneumatic tire, 7/16" Ball Bearing	3.50 ea.
. . . 8 x 1.75 wheel, semi pneumatic tire, 7/16" Ball Bearing	2.25 ea.
. . . 10 x 1.75 wheel, semi pneumatic tire, 7/16" Ball Bearing	3.25 ea.

To order above wheels write number wheels wanted in space provided, tear out and mail this ad with check or money order and your name and address.

Truison Mfg. Co., 811 E. 31 St., Dept. MI-119, Kansas City 3, Mo.

Assemble this Electric or Gas

MOTOR SCOOTER

As Low As $29.95

Speed 30-45 MPH. 2 speed transmission. Low gravity spring frame for easy riding. Large 12" tires—ULTRA STREAMLINED! Gas Model has 2 H.P. engine. Silent Electric Model has self-contained charger—plugs into any 110 volt socket!

Send Only $1.00 for complete photos, picture blueprints, construction (C.O.D. $1.52) details, lists of factory made parts, prices, etc., as well as DETAILED INFORMATION ON 135 OTHER PRODUCTS—some as follows:

Electric & Gas Lawn Motors
Pocket Radio "Walkie Talkies"
Car & Home Air Conditioners
2 H.P. "Midget" Car, 2 PSGR.
2 H.P. Garden Tractors
4 H.P. "Midget" Motorcycle
6 H.P. "Midget" Car
Electric & Gas Bike Motors

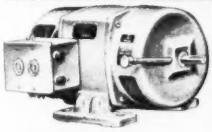
MOTOR INDUSTRIES CO. Dept. MS-9 KEARNEY, NEBRASKA

WOOD WORKERS

LUMBER—PLYWOOD AVAILABLE

Harold Hunt wants to send you big new No. 15-B Catalog. Over 148 pages of woodworking ideas, 12 pages of rare woods in natural colors. UNEQUALLED BARGAINS in imported and American woods, supplies, hard-to-find hardware. Send only 15c to cover postage and handling.

CRAFTSMAN WOOD SERVICE CO.
2729 S. Mary St., G-97, Chicago 8, Ill.



LELAND ELECTRIC GENERATOR

2.5 KVA, 120 volt, 60 cycle, 1 phase, AC. Any comparable new generator will cost you twice our price.

Remit by Bank Draft

$125 Freight Prepaid In U.S.A.

HOPFER & COMPANY
3122-A E. 14th St., Oakland Cal.

NEW *Electric* SANDER

Amazing

MOTO-SANDER AND POLISHER

Saves Time-Saves Effort! Dremel has developed a combination electric Sander and Polisher for home or shop . . . so easy to handle that a child can use it. New, inexpensive "Moto-Sander" delivers about 7,200 strokes a minute. Because of its high speed and fast, reciprocating action, **Moto-Sander** does a magically smooth job of sanding . . . gets into places other sanders can't reach. Rubber cushioned sanding pad measures 2¼"x5½". Cam-type-clamp paper holder permits changing sandpaper in seconds. **Moto-Sander** has only two moving parts . . . never needs oiling or adjustment . . . weighs only 2½ lbs. Uses 110-120 volt, 60 cycle A.C. electric current (only). Gives no radio interference. Comes with 8 ft. (Underwriters' Approved) rubber cord plus 6 sheets assorted grade Garnet paper, plus ¼" thick felt pad and sheepskin for wax polishing.

EASY FOR AWKWARD PLACES

SANDS FLAT SURFACES EVENLY

GETS INTO TIGHT CORNERS

ROUNDS CORNERS LIKE MAGIC

FINE FINISHES—FAST!

Use **Moto-Sander** to get satin smooth finish on woodwork, stairways, doors, furniture; ideal for sanding boats, painted walls, bird houses or scale models. Just guide it. Uses #2/0 Garnet paper or finer. For speedy, effortless polishing of waxed furniture, automobiles and other surfaces, use felt pad or sheepskin (furnished) in place of sanding paper. **Moto-Sander** is the lightest, most practical electric sander on the market—the only one of its kind, and is patented.

MONEY-BACK GUARANTEE: If your dealer does not yet have **Moto-Sander**, send only $14.85 . . . we'll pay postage. Or send $3 now, and pay postman balance plus postage. Money back if not delighted after 5 days' trial.

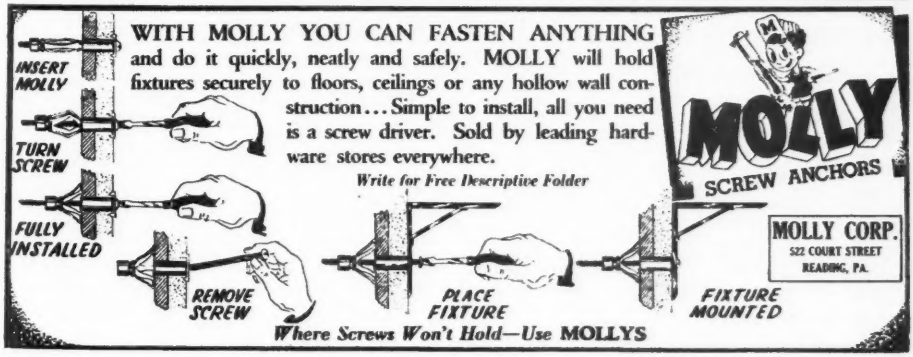
DREMEL MANUFACTURING CO.
Dept. SP148-J • Racine, Wis.

AIR RIFLES **BENJAMIN** AIR PISTOLS

PIONEERS - LEADERS

SEND FOR FREE FOLDER OF LATEST MODELS TODAY

If you want a REAL GUN for PRACTICAL USE inside or outdoors get a **SAFE - CLEAN - ECONOMICAL - BENJAMIN** with Adjustable Power and Amazing Accuracy. For **BEST RESULTS** use **BENJAMIN H-C PELLETS. WRITE AT ONCE. BENJAMIN AIR RIFLE CO., 814 MARION ST., ST. LOUIS 4, MO**



WITH MOLLY YOU CAN FASTEN ANYTHING and do it quickly, neatly and safely. MOLLY will hold fixtures securely to floors, ceilings or any hollow wall construction... Simple to install, all you need is a screw driver. Sold by leading hardware stores everywhere.

Write for Free Descriptive Folder

Where Screws Won't Hold—Use **MOLLYS**

IT'S EASY TO
"Trim-it-Yourself"
with
CHROMTRIM
METAL MOULDINGS

The perfected metal trim for wall or floor linoleum and building materials. 6' lengths, 8 shapes, easy to cut and apply.

Send 10c for "Trim Ideas" 16 page booklet. Over 30 projects and remodelling suggestions on where and how to use CHROMTRIM. Hints on lino-laying.

M. D. Werner Co., 391 Fifth Ave., N.Y. 16
Enclosed is 10c for CHROMTRIM "Trim Ideas" booklet MI-9
Name
Address
City Zone State

REMODEL KITCHEN BATH • ATTIC

MAKE METAL PROJECTS with CHROMTRIM

60 POWER TELESCOPE $2.95
VARIABLE EYEPIECE 20X-40X-60X

NEW! Three telescopes in one, 3 different magnifications. 20 power for ultra-bright images with 40 and 60 power for extra long range. Guaranteed to bring distant objects, people, sports events, ships, moon, stars, etc., 60 times as close.

Most powerful for anywhere near the money. 5 sections. Closes to 1 ft. long. Contains 4 ground and polished lenses. Also used as a powerful compound microscope. Directions included. Mass production enables us to offer this high-powered instrument at the amazing price of only $2.95. We pay the postage. Get yours immediately.

BROWNSCOPE CO. Dept. 9L 24 West 45 St. New York 19, N. Y.

CARBURETOR TOO RICH
MAKES MOTORIST TOO POOR

Car owners who are wasting money and not getting proper gas mileage due to over-rich mixtures will be pleased to learn how to save gasoline by VACU-MATING over-rich mixtures. VACU-MATIC fits all cars, trucks and tractors. It is automatic and operates on the supercharge principle. Easily installed in a few minutes.

SALESMEN WANTED! Big Profits!
Send name, address on penny postcard for free particulars and how to get yours for introducing.

VACU-MATIC CO., 7817-1338 W. State St., WAUWATOSA, WIS.

$4.95 REAL ENGINE VALUE

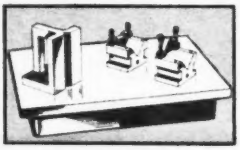
A miniature gas engine that really operates. Thousands of Buzz "B" gasoline engines have been sold at twice the price. Now is your chance to buy a real ¼th H.P. gas engine for only $4.95. Turns up over 8,000 rpm. For boats, planes, midget cars, etc. Guaranteed and ready to run. Includes Champion spark plug and tank. Send only $1.00, engine shipped collect for balance, same day. Write for free catalog or

SEND 10C FOR NEW MAMMOTH ILLUSTRATED CATALOG OF THOUSANDS OF HOBBY ITEMS.
America's Hobby Center, Inc., Dept. A-98, 156 West 22 St., N. Y. 11

SOUTH BEND

NEW SURFACE PLATE, V-BLOCKS, ANGLE PLATE

SURFACE PLATE for checking, laying out, etc. Precision ground to .001". 12" x 17" x 3", top 3/4" thick . $37.50

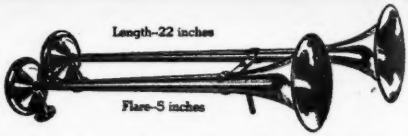


V-BLOCKS for holding cylindrical parts. Precision ground. 1-15/16" x 2-15/16" x 2-1/4". Cap. 1/4" to 2". Per matched pair . . $32.00

ANGLE PLATE. Precision ground. 3-1/4" x 3-1/4" x 4-1/4" $20.00

SOUTH BEND LATHE WORKS 453A E. Madison St. South Bend 22, Ind.

CADET DUAL VACUUM HORNS



At the Low Price We Can All Afford

Here is your chance to get air horn results—looks, blast and beautiful organ tone—at a fraction of the cost of air horns. Span brass with gleaming chrome finish or lasting lacquer. Positive operation. Complete unit consists of one pair of beautiful vacuum horns with the mounting brackets, valve, control handle, hose, fittings and installation instructions. Can be mounted on front fender or on top of or under the hood. A must for safety and smart appearance for any car. Chrome finish $29.50–Lacquer finish $23.75. Send check or money order and we will pay the postage—*or order C.O.D.*

The Protecturod Company Dept. 703
4033 Windsor Road - - Youngstown 7, Ohio

Would You Believe It? **POWER TOOLS**
Only $7.00 Each?

5 big capacity power tools in one machine: lathe, drill press, circular saw, sander and sander. Equal to equipment costing five times as much—uses ¼ to ½ H.P. motor. Factory-to-you only $34.95 complete. Send $17.50 (balance COD) on 10-day FREE trial, money-back guarantee, or write for FREE catalog.

10-DAY FREE TRIAL

EMBRICK, INC., 1779 Clinton, Kalamazoo, Mich.

STUDY THE EDUCATIONAL OPPORTUNITIES ON PAGE 45-54

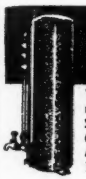
DRAINS CELLARS, WASH TRAYS CIRCULATES OIL

Pumps 1800 GPH 300 gal. 30' high, uses 1/8 to 1/3 HP motor. Will not clog.

$6.50

Postpaid if cash with order.
(Add 50c for west of the Mississippi.)
Thousands in use since 1936

LABAWCO PUMPS, BELLE MEAD 30, N. J.

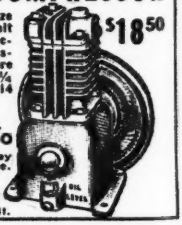


BUILD YOUR OWN ZEOLITE
WATER SOFTENER

You can do it inexpensively with only a wrench and a little spare time. Famous Zeolite process as used by leading manufacturers. Send $1 for easy-to-follow directions and list of materials. (Materials available locally or from us). *Or inquire about factory-built LARCO Softeners*, $55.20 up. LAKE REGION MFG. CO., INC. 3920-C Lynn Ave., Minneapolis 16, Minn.

PISTON TYPE AIR COMPRESSOR

Size 2 x 1¾, head in valves, bronze bearings, splash lubrication. "V" Belt drive. Intake muffler and cleaner. Capacity 2.8 c.f.m. at 100 lbs. continuous pressure, or 150 lbs. intermittent pressure with ½ HP motor. Can be used with ¼ HP or ⅓ HP at lower speed. Weight 14 lbs. Operating instructions furnished.



$18.50

PRICE ONLY **$18.50** F. O. B. CHICAGO

Immediate delivery. Send check or money order today. Sold on money back guarantee.

SEND FOR FREE FOLDER

C & M EQUIPMENT COMPANY
1831 S. State St., Dept. C-9, Chicago 16, Ill.

A TOOLSHOP IN YOUR HAND

There's Only One Genuine Handee

First tool of its kind—today's finest. Smooth, steady power at your fingertips. Easy to handle. Make ship, plane and train models, bookends, costume jewelry. Grinds, drills, polishes, routs, carves, sands, saws, engraves on metal, wood, plastic, glass, leather, etc. 25,000 r.p.m. AC or DC. Wt. 12 oz. Handee with 7 accessories $20.50. In case with 40 accessories $27.50. At stores or sent postpaid. A fine gift for a friend or yourself. CHICAGO WHEEL & MFG. CO., 1101 W. Monroe St., Dept. MI, Chicago 7, Ill. Free 32-page manual.

HANDEE TOOL OF 1001 USES

DEEP TONE

Dual Mufflers

for Ford, Mercury

Scientifically designed straight-thru muffler reduces back pressure. Greater power, speed, and economy. NEW brilliant Deep Tone makes your car standout. Heavy blowout-proof construction. Rugged steel tube throughout (No aluminum).

Simplified Installation. No cutting, no holes to drill. Rubber mounted clamps eliminate usual rattle. Complete with all necessary fittings, etc. Order direct and save. State year and model. Sent C.O.D. from Los Angeles. Price $20.

"Deep Tone" single muffler for Chevrolet, Ford, Plymouth—$4.98.
All other makes—$5.50. Chrome tail pipes, 2¼" dia. $1.75

ADVANCE MUFFLER CO.
6800 S. Vermont, Dept. MI-98 Los Angeles 44, Calif.

MOHAWK CHIEF

REAL AIRCRAFT CYLINDER

Not Cast Iron or Aluminum Without Liner! 1-piece steel cylinder * Deep cylinder fins * 1-piece crankshaft * Alum. crankcase * 1-piece steel piston * Bakelite tank * Adjustable timer * Precision needle valve * Alum. conn. rod. * Champion spark plug * SPITFIRE COIL — $1.95

TRUE QUALITY $8.95

SPECIFICATIONS
.299 disp. 8 class. 2-10000 RPM. Wt., 7 oz. .760 bore. .660 stroke. If not available at dealer order direct, adding 25c for handling. Or send $1.00 and we will ship C.O.D. for balance. Mohawk Eng. Co., Mohawk, N.Y.

EVERY BLOCK TESTED ENGINE GUARANTEED

BETCO Light Duty SANDER & POLISHER

For sanding and polishing metal, wood or any material not requiring a heavy duty tool. Does many jobs around the home faster, easier, better—even polishes your shoes. Lightweight (14 lbs.) Well balanced for easy handling. Comes with sanding disc and sheepskin bonnet. A.C. motor 110 volts, 60 cycle, single phase. With 10 ft. cord $22.50—with 25 ft. cord $23.25—with 50 ft. cord $24.50. Postage paid if cash with order. 25% deposit on C.O.D.'s.

BROADWAY ELECTRIC TOOL CO.
619 N. Broadway, Oklahoma City, Okla.

IT'S EASY TO REMOVE PAINT

VARNISH, ENAMEL, SHELLAC, LACQUER

Don't paint over a cracked or peeling surface. It's so easy to remove it with Wonder-Paste. Applied with a brush, Wonder-Paste softens up any number of coats of paint, varnish, enamel, shellac, or lacquer... reduces it to a soft, unresisting sludge that yields readily to a putty knife.

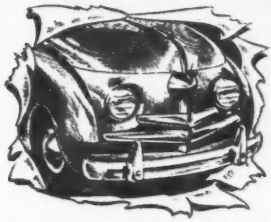
Ask for Wonder-Paste at your paint or hardware store. Used by painters everywhere.

WONDER-PASTE

Write for Literature

Wilson-Imperial Company · 117 Chestnut Street, Newark 5, N. J.

NOW CROSLEY HAS THE NEW LOOK



See the stand-out styling of the Crosley Station Wagon. All steel. Seats 4, or 2 with ¼-ton load. Priced $600 to $700 lower than any other station wagon, costs about ½ as much to operate. Also available as a panel delivery truck without rear side windows.

And all five Crosleys have the new look, massive radiator louvers and a gleaming spinner adopted from aircraft propellers. Every model features the startling 4-Cylinder Cobra (COpper-BRAzed) engine.

STATION WAGON: Goes everywhere smartly.

CONVERTIBLE: If you love sun and air.

SEDAN: Over 20,000 now on the road.

PICK-UP: Cuts service and delivery costs.

CROSLEY

a FINE car

For beautiful full-color catalog, write: Crosley Motors, Inc., 2522-OL Spring Grove Ave., Cin'ti 14, Ohio

AUTOMOBILE RACING BOOK (Fifth Edition Revised)

12 Chapters. 77 Illustrations dirt track, championship and midget cars. How to build engines, chassis and bodies. Why the fast ones are fast and how to make them fast. How to speed up Ford V-8 cars and rebuild Ford A and B engines. How world's record cars are built. Official AAA midget rules and international formula. Order NOW! $1.00 Postpaid; $1.19 C. O. D. Money back if not satisfied.

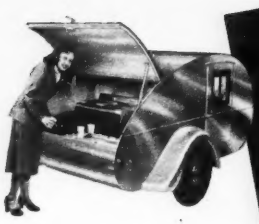
RAY F. KUNS Dept. A-47 Cincinnati 27, Ohio

HIDE GLUE *best for all* WOOD WORK

NO ODOR
NO MIXING
NO HEATING
NO CHILLED JOINTS

15¢ At Your HARDWARE

Used by leading furniture manufacturers, craftsmen, schools. If your dealer cannot supply you, send 20c (including postage and wrapping) to THE FRANKLIN GLUE CO., COLUMBUS 15, O.



TWO DAYS' FUN SAVES $200!

You've seen the CUB Sports Trailer on local lots for more than $500. You've envied CUB owners who could afford the luxury of an all-metal trailer. Now you can have a CUB of your own—for $279.50.

Here, for the first time, is a full-size trailer in construction kit form—at less than the cost of materials alone. Best of all, assembly is so simple that you can build the CUB with a crescent wrench and screw-driver—in less than two days.

Actually, the CUB is all but ready to roll when it leaves our factory. Aluminum panels are precision cut and guaranteed to fit, holes are all drilled, and every practical sub-assembly is completed by factory craftsmen. You simply tighten a few bolts—and hit the road with a streamlined sportster that pays for itself on one vacation.

The CUB is 12' 7" long, 6' wide, 5' high, sleeps two, adds only 75 pounds tongue-weight to your car, and includes galley, wheels, fenders—all essential parts except tires and tubes.

F.O.B. Los Angeles, price for full kit—$279.50
(C.O.D. shipment will be made if at least $50 deposit accompanies order)

Write for illustrated booklet . . . FREE

National Trailer Stores
Dept. 84, Box 2353, Terminal Annex,
Los Angeles 54, California

7x50 PRISM BINOCULARS
BRAND NEW
With Leather Case
$48
With Coated Optics
$58
Plus 20% Tax

Ultra-precise optics, made to military specifications, sealed against moisture and dust in lightweight aluminum bodies. Money-back guarantee. Immediate delivery. We pay the Shipping Cost.

BROWNSCOPE CO.
Dept. 9L, 24 West 45th St., New York 19, N. Y.

SAVE TIME, WORK, MONEY!
SHAW "DU-ALL" and "PEPPY PAL" TRACTORS

These rugged walking or riding tractors are ideal for farm, truck garden, orchard, poultry farm. Operate on a few cents an hour. A child can handle them.
DO DOZENS OF JOBS Both riding and walking tractors quickly and easily plow, cultivate, harrow, disk, bulldoze, spray, haul, grind, saw wood, etc.
LOW FACTORY PRICES Buy direct or through your dealer. Year's guarantee!
RIDING TRACTORS 4 models from 5 to 12½ H.P., 58 in. wheelbase, 36 to 52 in. wide, 24 in. plant clearance. Hand or electric starter. Walking Tractors 1½ to 3 H.P.
FREE Illustrated folders giving complete details and price lists—write today!

SHAW MFG. CO.
2909 FRONT ST., GALESBURG, KANS.
668ME NORTH 4TH ST., COLUMBUS, O.

EASY TO BUILD
KAYAKS
INBOARDS
OUTBOARDS
ROWBOATS
RUNABOUTS
DINGHIES
V23 CRUISER

U-MAK-IT BOAT KITS for Home Assembly. Complete with Illustrated Instructions. No Experience Necessary.
SEND 25c Postage (Coin) Today for 3 Money Saving Illus. Catalogs Showing all '48 Models & Construction Details.

KAYAK BOAT CO.
703A-WHITTIER ST., N. Y. 59, N. Y.

WORLD'S LOWEST PRICED ADDING MACHINE
Vest Pocket Size
FREE TRIAL
ONLY $2.95
TOTAL COST
SEND NO MONEY

IDEAL FOR BUSINESS OR PERSONAL USE—GUARANTEED ACCURATE. Not a toy. Operates with only a finger flick. Adds, subtracts, multiplies, divides. Counts up to one billion. Pays for itself over and over. Ideal Gift—for Business, Income Tax and School use. MONEY BACK GUARANTEE. Send name and address. Pay postman only $2.95 plus postage. (Send full cash if outside U.S.) Beautiful rich-looking Leatherette Case included at no extra cost. Money back in 10 days if not delighted. AGENTS WANTED.

Calculator Machine Co., (Mfrs.) Dept. 341, P.O. Box 248 Glenview, Illinois

5,000,000 FEET OF LUMBER @ $35 per M.B.M.

One man did it. You can too, with a BELSAW All-Purpose Sawmill. Replace or repair farm buildings with your own well-finished, low-cost lumber. Portable BELSAW goes to the trees, brings back ALL the lumber for ALL your buildings . . . boards, joists, lath, shingles.

BELSAW MACHINERY CO
834G Field Bldg., Westport Rd., Kansas City, Mo.

BUILD THIS 6-INCH TELESCOPE

Over two thousand MECHANIX ILLUSTRATED readers have started to build the portable telescope shown above. Costing less than 35 dollars for material, with this easy-to-build astronomical instrument you can read a newspaper at a mile, see the rings of Saturn or the polar caps of Mars.
Plans are complete with perspective drawings, photographs and instructions. Price per set: $2.00 postpaid. Please specify plan No. P-6. Send check or money order to . . . . . .

MECHANIX ILLUSTRATED PLANS SERVICE
FAWCETT BUILDING, GREENWICH, CONN.

RADIOMEN'S HEADQUARTERS ✧ WORLD WIDE MAIL ORDER SERVICE!

SOS EMERGENCY TRANSMITTER SOS

This is the famous Gibson Girl Transmitter that saved so many lives during the war. It is used as a distress call transmitter on boats and airplanes. The Gibson Girl is the easiest transmitter in the world to operate. No instruction or experience necessary. No external power supply required for operation. It is merely necessary to turn the crank on the top of the transmitter and power is generated and the distress signal is automatically sent out on the international distress frequency. Brand New Gibson Girl transmitter complete with tubes $9.95

Antenna Kit for Gibson Girl transmitter. This kit was designed to improve the effectiveness of the Gibson Girl Transmitter by increasing the range several times. The kit includes 300 feet of special antenna wire, two balloons for raising the antenna in calm weather, two hydrogen generators to inflate the balloons, a special box kite for antenna erection in windy weather, and a searchlight, powered by the crank operated generator in the transmitter. Complete kit $9.95

AUTO RADIO DEALERS! ATTENTION!

Nationally advertised brand of 1948 car radio which will fit practically any car and every pocketbook. Six tube superhet with three gang condenser and 6½" speaker. **$32.20 for sample, or 2 for $29.97 each.**

GENERAL ELECTRIC RT-1248 15-TUBE TRANSMITTER-RECEIVER

TERRIFIC POWER—(20 watts) on any two instantly selected, easily pre-adjusted frequencies from 435 to 500 Mc. Transmitter uses 5 tubes including a Western Electric 316 A as final. Receiver uses 10 tubes including 955's, as first detector and oscillator, and 3—7H7's as IF's, with 4 slug-tuned 40 Mc. IF transformers, plus a 7H7, 7E6's and 7F7's. In addition unit contains 8 relays designed to operate any sort of external equipment when actuated by a received signal from a similar set elsewhere. Originally designed for 12 volt operation, power supply is not included, as it is a cinch for any amateur to connect this unit for 110V AC, using any supply capable of 400V DC at 135 MA. The ideal unit for use in mobile or stationary service in the Citizen's Radio Telephone Band where no license is necessary. Instructions and diagrams supplied for running the RT-1248 transmitter on either code or voice in AM or FM transmission or reception, for use as a mobile public address system, on 80 to 110 Mc. as an FM broadcast receiver, as a Facsimile transmitter or receiver, as an amateur television transmitter or receiver, for remote control relay hookups, for Geiger-Mueller counter applications. It sells for only **$29.95** or two for **$53.90.** If desired for marine or mobile use, the dynamotor which will work on either 12 or 24V DC and supply all power for the set is only $15.00 additional.

Terrific Value—Portable Electric Drill

(Sold at less than established factory price so we cannot mention brand name)

Only $19.95 equipped with ¼" Jacobs Geared Chuck and Key. Not an intermittent duty drill, but a full size rugged tool. Most convenient type switch, natural grip handle, and balance like a six shooter.

Precision cut gears — turbine type cooling blower — extra long brushes.

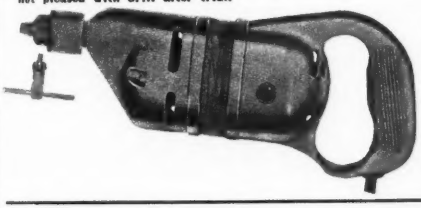
No stalling under heaviest pressure because of powerful 110 Volt AC-DC motor and multiple ball thrust bearing.

Other bearings self-aligning lifetime-lubricated Chrysler Oilite type.

Made for toughest year-in and year-out service in plant or on construction jobs.

Amazing perpetual factory guarantee assures you of a lifetime of trouble-free use.

25% deposit on C.O.D.'s. Full refund (you pay transportation) if not pleased with drill after trial.



ALUMINUM GEAR BOX 18x8x7 that contains two powerful electric motors and two matched gear trains, 62 gears in all varying in size from ½ to 4 inches in diameter. This unit is readily converted to rotate a beam antenna or for any other similar use $3.00

Sensational Value In AC-DC Pocket Tester

This analyzer, featuring a sensitive repulsion type meter housed in a bakelite case, represents the culmination of 15 years achievement in the instrument field by a large company specializing in electronic test equipment.

Specifications of the AC-DC Model Volt-Ohm-Milliammeter:

AC Volts—0-25,50,125,250
DC Volts—0-25,50,125,250
Milliamperes AC—0 to 50
DC Milliamperes—0 to 50
Ohms Full Scale—100,000
Ohms Center Scale—2400
Capacity—.05 to 15 Mfd.

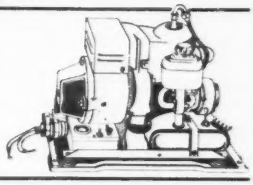
Total Price, prepaid anywhere in the USA—**$7.00**

Similar DC Meter, lacking the AC operated ranges of above, **$5.50** prepaid

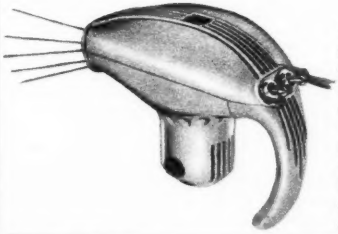
PE-109 32-VOLT DIRECT CURRENT POWER PLANT

This power plant consists of a gasoline engine that is direct coupled to a 2000 watt 32 volt DC generator. This unit is ideal for use in locations that are not serviced by commercial power or to run many of the surplus items that require 32V DC for operation. **The price of this power plant is only $58.95.** We can also supply a converter that will supply 110 V AC from the above unit or from any 16-32V DC source for **$12.95.**

(Due to the fact that the PE-109 comes to us sealed in heavy steel strapped govt. cases we are unable to determine whether the individual units are new or used or what the condition is if used, and consequently must sell them as is. In general, they represent a terrific bargain.)



HEAT GUN



Streamlined pistol grip heat gun in vivid red housing, that delivers a powerful 20 Cubic Ft. per minute blast of hot air at 160° Fahrenheit. Ordinary blowers have small fan motors, but this has a lifetime-lubricated AC-DC motor of the rugged vacuum cleaner type, that produces a hurricane of either hot or cold air. Perfect for blowing out dirt or dust, drying out ignition systems, warming up carburetors, drying paint, thawing out radiators, etc. Warning:—Keep this away from your wife, or she will be using it to dry her hair because it will do it in half the time of her ordinary hair dryer, to say nothing of her using it to dry stockings or clothing, or defrost the refrigerator instantly. Only $12.95. Satisfaction guaranteed or money refunded if returned prepaid within 5 days.

CABLE ADDRESS BUFRAD

Minimum order $3.00—All prices subject to change—25% deposit with C.O.D. orders.

BUFFALO RADIO SUPPLY, 219-221 Genesee St., Dept. MI-9, BUFFALO 3, N. Y.

SOUTH BEND

PLAN YOUR SHOP AROUND THIS LATHE

9-INCH MODEL C LATHE FEATURES

- Fine workmanship by highly experienced machine tool craftsmen
- Superfinished spindle with large bearings
- Belt drive for smooth, quiet operation at high speeds
- Back-gear drive for power and low speeds
- Thread cutting range—4 to 160 per inch, 45 pitches R.H. or L.H.
- Precision lead screw for thread cutting
- Longitudinal power feeds (14)—.0021" to .0156"
- Three hand-scraped V-ways and a flat way on bed insure perfect alignment of headstock, saddle and tailstock
- Compound rest and cross-feed dovetails are hand-scraped, and have adjustable gibs

The South Bend 9-Inch Lathe is basic equipment for all kinds of accurate machine work — precision manufacturing operations, auto, radio and appliance repair, tool and instrument work, model building, pattern making, and wood turning. A fine precision tool capable of machining work to exacting tolerances, it performs a wide variety of operations on metals of all kinds, wood, plastics, and similar materials. It is used for turning, boring, drilling, cutting screw threads, milling, grinding, polishing and many other machining jobs.

The 9-inch South Bend Lathe is practically a shop in itself as the addition of a few practical attachments will increase its versatility beyond the usual scope of lathe work. Write today for catalog giving complete information on this and other types and sizes of South Bend Lathes.

BUILDING BETTER TOOLS SINCE 1906

SOUTH BEND LATHE WORKS

453 EAST MADISON STREET, SOUTH BEND 22, INDIANA

PRINTED IN U.S.A.

IE

nds
era-
nent
g. A
ting
net-
t is
nill-

it-
in-
ork.
this

NTED
IN
S. A.

E

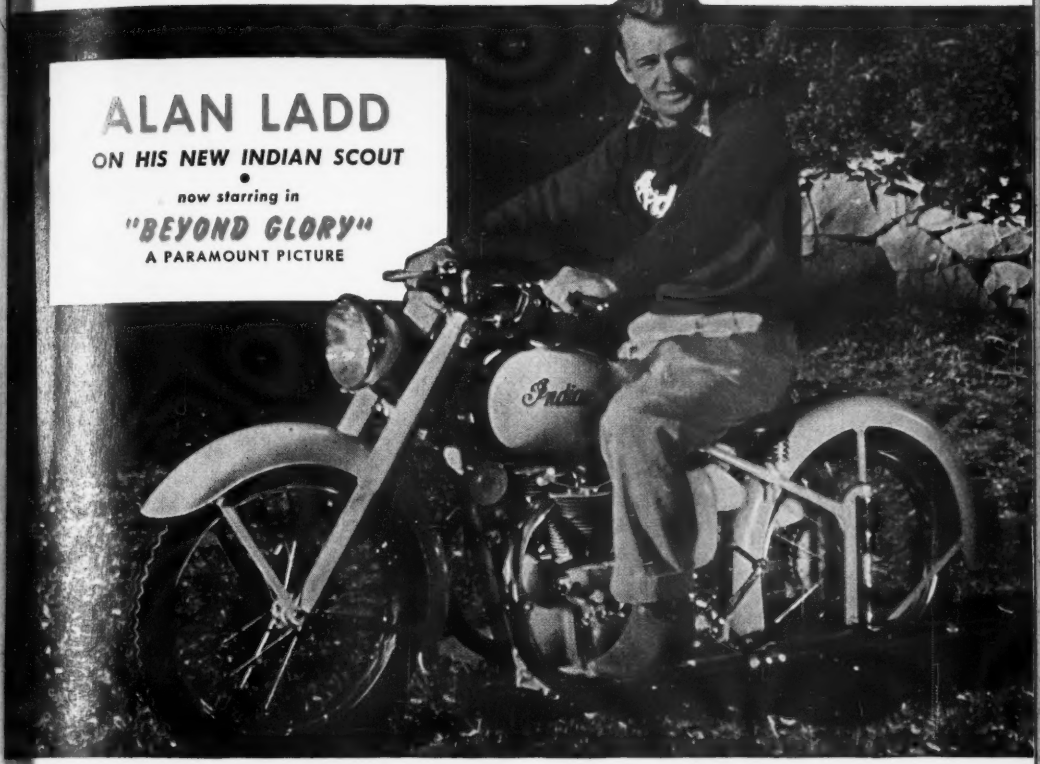
ds
o-
ent
. A
ng
et-
is
ill-
il-
in-
rk.
his

RE

A ne
And
to e
mod
fort
ratin
cycle
revo
cycle
your

Indian

NOW THOUSANDS WHO NEVER RODE BEFORE CAN ENJOY MOTORCYCLING



NEW Indian LIGHTWEIGHTS REVOLUTIONIZE SPORT OF MOTORCYCLING

A new sport is sweeping America—motorcycling! And Indian is enabling hundreds of thousands to enjoy it by bringing out new lightweight models that anyone, of any age, can ride in comfort and safety. Years ahead in design, incorporating ideas never previously heard of in motorcycles, the new Indian Arrow and Scout are truly revolutionary. If you've never ridden a motorcycle, you don't know what you're missing. See your Indian dealer today and find out!

SAFEST MOTORCYCLES EVER BUILT
•
LEARN TO RIDE IN ONE EASY LESSON
•
COSTS LITTLE TO OWN AND OPERATE
•
SENSATIONAL IN PERFORMANCE
•
YEARS AHEAD IN DESIGN

Indian —WORLD'S MOST MODERN MOTORCYCLES

Dealer Inquiries Invited

Indian Motocycle Company • Springfield, Mass.

SEND FOR FREE CATALOGUE

Indian Motocycle Co., Dept. ME98
Springfield, Mass.

Please send me Catalogue containing complete information about your new Indian lightweight models.

☐ I own a _____ motorcycle
☐ I do not own a motorcycle
☐ I am over 16 ☐ under 16

Name _____
Address _____
City _____ State _____

HERE'S A LESSON ON

How to Dive!

Petite diving star "JIM" FAIRBROTHER says that in diving...or choosing a cigarette... EXPERIENCE IS THE BEST TEACHER!

It takes a lot of trying ...until experience tells you that you've finally found perfection!

Here's how a 1½ cutaway should look. Study it carefully — and see what you can do!

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

Let your T-Zone tell you why More people are smoking CAMELS than ever before!

• Here's a lesson in choosing a cigarette, too! Like Miss Fairbrother, countless smokers have tried different brands—and *compared*—for full flavor and cool-smoking mildness. Camels—made from *choice* tobaccos, properly aged and *expertly* blended—are the *choice of experience* with millions!

Try Camels in *your* "T-Zone." See how their rich, full flavor suits *your* taste. See how Camel's cool mildness suits *your* throat! Learn from *your own* experience why more people are smoking Camels than ever before!

According to a Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

Three leading independent research organizations asked 113,597 doctors what cigarette they smoked. The brand named most was Camel!